Red Hat Directory Server 8.1 Using the Admin Server

with Red Hat Directory Server
Edition 8.1.1

Landmann

Red Hat Directory Server 8.1 Using the Admin Server

with Red Hat Directory Server
Edition 8.1.1

Landmann
rlandmann@redhat.com

Abstract

The Admin Server is a support server which drives access to the Directory Server Console, provides a web server for Directory Server web applications, and stores some Directory Server configuration. This guide covers how to manage the Admin Server through the Console, through the command line, and through the web services, along with covering basic Admin Server concepts.

Table of Contents

Preface **4**
1. Examples and Formatting 4
1.1. Command and File Examples 4
1.2. Tool Locations 4
1.3. LDAP Locations 4
1.4. Text Formatting and Styles 4
2. Additional Reading 5
3. Giving Feedback 6
4. Documentation History 7

Chapter 1. Introduction to Red Hat Admin Server **8**

Chapter 2. Admin Server Configuration **10**
2.1. Directory Server File Locations 10
2.2. Starting and Stopping the Admin Server 11
2.2.1. Starting and Stopping Admin Server from the Console 11
2.2.2. Starting and Stopping Admin Server from the Command Line 11
2.3. Opening the Admin Server Console 12
2.4. Viewing Logs 13
2.4.1. Viewing the Logs through the Console 14
2.4.2. Viewing Logs in the Command Line 14
2.4.3. Changing the Log Name in the Console 15
2.4.4. Changing the Log Location in the Command Line 16
2.4.5. Setting the Logs to Show Hostnames Instead of IP Addresses 17
2.5. Changing the Port Number 17
2.5.1. Changing the Port Number in the Console 18
2.5.2. Changing the Port Number in the Command Line 18
2.6. Setting Host Restrictions 19
2.6.1. Setting Host Restrictions in the Console 19
2.6.2. Setting Host Restrictions in the Command Line 20
2.7. Changing the Admin User's Name and Password 22
2.8. Working with SSL 23
2.8.1. Requesting and Installing a Server Certificate 23
2.8.2. Installing a CA Certificate 26
2.8.3. Enabling SSL 28
2.8.4. Creating a Password File for the Admin Server 29
2.9. Changing Directory Server Settings 31
2.9.1. Changing the Configuration Directory Host or Port 31
2.9.2. Changing the User Directory Host or Port 31

Chapter 3. Admin Express **34**
3.1. Managing Servers in Admin Express 34
3.1.1. Opening Admin Express 34
3.1.2. Starting and Stopping Servers 34
3.1.3. Viewing Server Logs 35
3.1.4. Viewing Server Information 35
3.1.5. Monitoring Replication from Admin Express 36
3.2. Configuring Admin Express 38
3.2.1. Admin Express File Locations 38
3.2.2. Admin Express Configuration Files 39
3.2.2.1. Files for the Admin Server Welcome Page 39
3.2.2.2. Files for the Replication Status Appearance 40

3.2.2.3. Files for the Server Information Page 41
3.2.2.4. Files for the Server Logs Page 42
3.2.3. Admin Express Directives 43

Chapter 4. Admin Server Command-Line Tools **46**
4.1. sec-activate 46
4.2. modutil 46

Index **60**
A 60
C 61
D 61
E 62
F 62
H 62
J 62
L 62
M 62
P 63
R 63
S 64
U 64
V 64

Preface

The *Admin Server Guide* provides information on using a support administrative server with identity management projects including Red Hat Directory Server and Red Hat Certificate System. The Admin Server runs the Java consoles used by those servers, as well as providing web services and storing configuration information for those services.

The Admin Server is installed and configured automatically with Red Hat Directory Server. This guide covers how to use and manage the Admin Server through its own Java Console (part of Red Hat Console, along with the Directory Server Console), through native command-line tools, and through the integrated web services.

1. Examples and Formatting

Each of the examples used in this guide, such as file locations and commands, have certain defined conventions.

1.1. Command and File Examples

All of the examples for Red Hat Directory Server commands, file locations, and other usage are given for Red Hat Enterprise Linux 5 (32-bit) systems. Be certain to use the appropriate commands and files for your platform.

> **Example 1. Example Command**
>
> To start the Red Hat Directory Server:
>
> ```
> service dirsrv start
> ```

1.2. Tool Locations

The tools for Red Hat Directory Server are located in the **/usr/bin** and the **/usr/sbin** directories. These tools can be run from any location without specifying the tool location.

1.3. LDAP Locations

There is another important consideration with the Red Hat Directory Server tools. The LDAP tools referenced in this guide are Mozilla LDAP, installed with Red Hat Directory Server in the **/usr/lib/mozldap** directory on Red Hat Enterprise Linux 5 (32-bit) (or **/usr/lib64/mozldap** for 64-bit systems).

However, Red Hat Enterprise Linux systems also include LDAP tools from OpenLDAP in the **/usr/bin** directory. It is possible to use the OpenLDAP commands as shown in the examples, but you must use the **-x** argument to disable SASL, which OpenLDAP tools use by default.

1.4. Text Formatting and Styles

Certain words are represented in different fonts, styles, and weights. Different character formatting is used to indicate the function or purpose of the phrase being highlighted.

Formatting Style	Purpose
Monospace font	Monospace is used for commands, package names, files and directory paths, and any text

	displayed in a prompt.
`Monospace with a background`	This type of formatting is used for anything entered or returned in a command prompt.
Italicized text	Any text which is italicized is a variable, such as *instance_name* or *hostname*. Occasionally, this is also used to emphasize a new term or other phrase.
Bolded text	Most phrases which are in bold are application names, such as **Cygwin**, or are fields or options in a user interface, such as a **User Name Here:** field or **Save** button.

Other formatting styles draw attention to important text.

NOTE

A note provides additional information that can help illustrate the behavior of the system or provide more detail for a specific issue.

IMPORTANT

Important information is necessary, but possibly unexpected, such as a configuration change that will not persist after a reboot.

WARNING

A warning indicates potential data loss, as may happen when tuning hardware for maximum performance.

2. Additional Reading

The *Directory Server Administrator's Guide* describes how to set up, configure, and administer Red Hat Directory Server and its contents. this manual does not describe many of the basic directory and architectural concepts that you need to deploy, install, and administer a directory service successfully. Those concepts are contained in the *Red Hat Directory Server Deployment Guide*. You should read that book before continuing with this manual.

When you are familiar with Directory Server concepts and have done some preliminary planning for your directory service, install the Directory Server. The instructions for installing the various Directory Server components are contained in the *Red Hat Directory Server Installation Guide*. Many of the scripts and commands used to install and administer the Directory Server are explained in detail in the *Red Hat Directory Server Configuration, Command, and File Reference*.

Also, *Managing Servers with Red Hat Console* contains general background information on how to use the Red Hat Console. You should read and understand the concepts in that book before you attempt to

administer Directory Server.

The document set for Directory Server contains the following guides:

- *Red Hat Directory Server Release Notes* contain important information on new features, fixed bugs, known issues and workarounds, and other important deployment information for this specific version of Directory Server.
- *Red Hat Directory Server Deployment Guide* provides an overview for planning a deployment of the Directory Server.
- *Red Hat Directory Server Administrator's Guide* contains procedures for the day-to-day maintenance of the directory service. Includes information on configuring server-side plug-ins.
- *Red Hat Directory Server Configuration, Command, and File Reference* provides reference information on the command-line scripts, configuration attributes, and log files shipped with Directory Server.
- *Red Hat Directory Server Installation Guide* contains procedures for installing your Directory Server as well as procedures for migrating from a previous installation of Directory Server.
- *Red Hat Directory Server Schema Reference* provides reference information about the Directory Server schema.
- *Red Hat Directory Server Plug-in Programmer's Guide* describes how to write server plug-ins in order to customize and extend the capabilities of Directory Server.
- *Using Red Hat Console* gives an overview of the primary user interface and how it interacts with the Directory Server and Admin Server, as well as how to perform basic management tasks through the main Console window.
- *Using the Admin Server* describes the different tasks and tools associated with the Admin Server and how to use the Admin Server with the Configuration and User Directory Server instances.

For the latest information about Directory Server, including current release notes, complete product documentation, technical notes, and deployment information, see the Red Hat Directory Server documentation site at http://www.redhat.com/docs/manuals/dir-server/.

3. Giving Feedback

If there is any error in this *Using the Admin Server* or there is any way to improve the documentation, please let us know. Bugs can be filed against the documentation for Red Hat Directory Server through Bugzilla, http://bugzilla.redhat.com/bugzilla. Make the bug report as specific as possible, so we can be more effective in correcting any issues:

- Select the Red Hat Directory Server product.
- Set the component to **`Doc - managing-servers`**.
- Set the version number to 8.1.
- For errors, give the page number (for the PDF) or URL (for the HTML), and give a succinct description of the problem, such as incorrect procedure or typo.

  For enhancements, put in what information needs to be added and why.
- Give a clear title for the bug. For example, **`"Incorrect command example for setup script options"`** is better than **`"Bad example"`**.

We appreciate receiving any feedback — requests for new sections, corrections, improvements, enhancements, even new ways of delivering the documentation or new styles of docs. You are welcome to contact Red Hat Content Services directly at mailto:docs@redhat.com.

4. Documentation History

Revision 8.1.1	**September 9, 2009**	**Ella Deon Lackey**

Removing any references to the Directory Server Gateway or Org Chart.

Revision 8.1.0	**April 28, 2009**	**Ella Deon Lackey**

Initial draft for version 8.1.

Chapter 1. Introduction to Red Hat Admin Server

Identity management and directory services with Red Hat Directory Server use three components, working in tandem:

- A Java-based management console
- An administration server which also functions as a web server
- An LDAP directory server

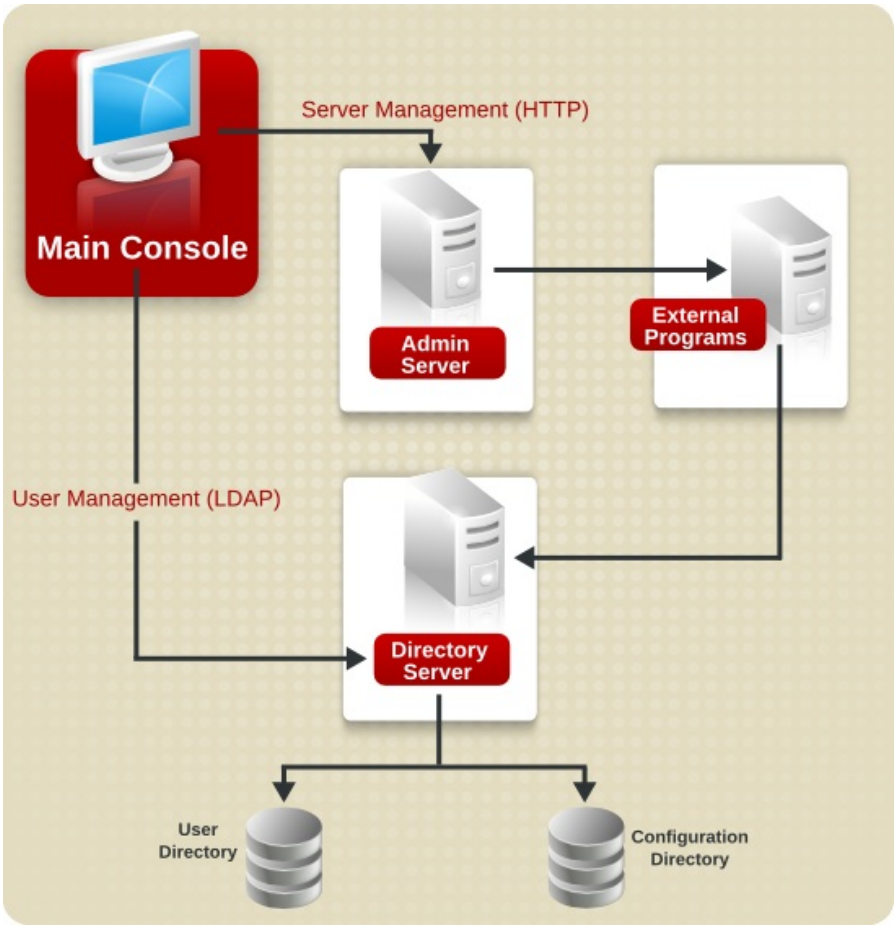


Figure 1.1. Interactions between the Console, Admin Server and Directory Server

The Admin Server processes configuration requests for Directory Server instances and performs many common server tasks, such as stopping and starting server instances. Directory services are usually divided into two categories: *configuration* databases which store the Console and Admin Server settings and some Directory Server configuration and *user* databases which contain user and group information. These databases can be kept in the same Directory Server instance, but it is also possible to break these services into separate Directory Server instances. In that case, a Directory Server instance's configuration are stored in a separate Directory Server, called the *Configuration Directory Server*, and user data is stored in the *User Directory Server*. Because the Admin Server processes server configuration requests for Red Hat Directory Server, the Configuration Directory Server and User Directory Server instances are both defined in the Admin Server configuration.

As a web server, the Admin Server provides all of the online functions of the Directory Server, including handling connections to the Console and hosting web applications such as Admin Express. Clients connect to the Admin Server both over secure and standard connections, since the Admin Server supports both HTTP or HTTPS, if SSL/TLS is enabled.

When Red Hat Directory Server or Red Hat Certificate System (which depends on Red Hat Directory Server) is installed, then the Admin Server is automatically installed and configured as well. There can be multiple Directory Server instances and multiple Certificate System subsystems on a single machine, and all use the same instance of Admin Server.

There can be *only one* Admin Server per machine. This single Admin Server instance can handle multiple instances of Directory Server and other clients which can use the Admin Server, like Red Hat Certificate System.

When the Console is opened to manage an instance of Directory Server or Certificate System, even if the Console is on a different machine than the server instance being managed, it contacts the local Admin Server instance to perform the requested tasks. For example, Admin Server can execute programs to modify the server and application settings that are stored in the configuration directory or to change the port number that a server listens to.

The Admin Server itself can be managed through its own Java-based interface, by editing its configuration files, or through command-line tools.

Chapter 2. Admin Server Configuration

The Admin Server is a separate server from Red Hat Directory Server or Red Hat Certificate System, although they work interdependently. The Admin Server processes, file locations, and configuration options are also separate. This chapter covers the Admin Server information, including starting and stopping the Admin Server, enabling SSL, viewing logs, and changing Admin Server configuration properties, such as the server port number.

2.1. Directory Server File Locations

Red Hat Admin Server conforms to the Filesystem Hierarchy Standards. For more information on FHS, see the FHS homepage, http://www.pathname.com/fhs/.

There are slight difference in the file locations depending on the platform, so the default Red Hat Enterprise Linux FHS locations (used in the examples) may not match every installation. Some platforms treat the Admin Server as optional software and therefore, under FHS, store Admin Server files in `/opt` directories.

The files and directories installed with Directory Server are listed in the tables below for each supported platform.

Table 2.1. Red Hat Enterprise Linux 4 and 5 (x86 and x86_64)

File or Directory	Location
Log files	/var/log/dirsrv/admin-serv
Configuration files	/etc/dirsrv/admin-serv
Instance directory	/usr/lib/dirsrv/admin-serv
Database files	/var/lib/dirsrv/admin-serv
Runtime files	/var/lock/dirsrv/admin-serv.* /var/run/dirsrv/admin-serv.*
Init scripts	/etc/rc.d/init.d/dirsrv-admin /etc/sysconfig/dirsrv-admin
Tools	/usr/bin/ /usr/sbin/

Table 2.2. HP-UX 11i (IA64)

File or Directory	Location
Log files	/var/opt/dirsrv/admin-serv/logs
Configuration files	/etc/opt/dirsrv/admin-serv/runs
Instance directory	/opt/dirsrv/admin-serv
Database files	/var/opt/dirsrv/admin-serv
Runtime files	/var/opt/dirsrv/admin-serv
Binaries	/opt/dirsrv/bin/ /opt/dirsrv/sbin/
Libraries	/opt/dirsrv/lib/

2.2. Starting and Stopping the Admin Server

The Admin Server is running when the **setup-ds-admin.pl** configuration script completes. Avoid stopping and starting the server to prevent interrupting server operations.

- When starting in SSL, the start script prompts for the password for the security (SSL certificate) database. It is possible to restart in SSL without being prompted for a password by using a password file. See Section 2.8.4, “Creating a Password File for the Admin Server” for more information.

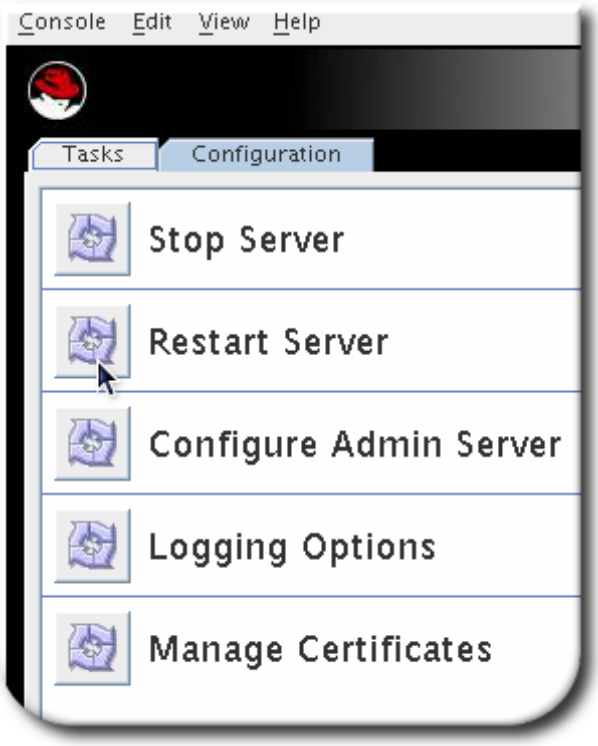
  If there is not password file, then the Admin Server cannot be restarted in SSL through the Console, only the command-line scripts.
- Rebooting the host system can automatically start the Admin Server's **httpd** process. The directory provides startup or run command (**rc**) scripts. On Red Hat Enterprise Linux, use the **chkconfig** command to enable the Admin Server to start on boot. For HP-UX, check the operating system documentation for details on adding these scripts.

2.2.1. Starting and Stopping Admin Server from the Console

1. Start the Console, and open the Admin Console.

   ```
   /usr/bin/redhat-idm-console -a http://localhost:9830
   ```

2. In the **Tasks** tab, click **Restart Server** or **Stop Server**.



When the Admin Server is successfully started or stopped from the Console, the server displays a message box stating that the server has either started or shut down.

2.2.2. Starting and Stopping Admin Server from the Command Line

There are two ways to start, stop, or restart the Admin Server:

- There are scripts in the **/usr/sbin** directory.

```
/usr/sbin/{start|stop|restart}-ds-admin
```

- The Admin Server service can also be stopped and started using system tools on Red Hat Enterprise Linux 5 (32-bit) using the **service** command. For example:

```
service dirsrv-admin {start|stop|restart}
```

NOTE

The service name for the Admin Server process on Red Hat Enterprise Linux 5 (32-bit) is **dirsrv-admin**.

2.3. Opening the Admin Server Console

There is a simple script to launch the main Console. On Red Hat Enterprise Linux, run the following:

```
/usr/bin/redhat-idm-console
```

HP-UX has a different location for the script:

```
/opt/dirsrv/bin/redhat-idm-console
```

When the login screen opens, the Admin Server prompts for the username, password, and Admin Server location. The Admin Server location is a URL; for a standard connection, this has the **http:** prefix for a standard HTTP protocol. If SSL/TLS is enabled, then this uses the **https:** prefix for the secure HTTPS protocol.

Figure 2.1. Login Box

TIP

It is possible to send the Admin Server URL and port with the start script. For example:

```
/usr/bin/redhat-idm-console -a http://localhost:9830
```

The **a** option is a convenience, particularly for logging into a Directory Server for the first time. On subsequent logins, the URL is saved. If the Admin Server port number is not passed with the **redhat-idm-console** command, then the server prompts for it at the Console login screen.

This opens the main Console window. To open the Admin Server Console, select the Admin Server instance from the server group on the left, and then click the **Open** at the top right of the window.

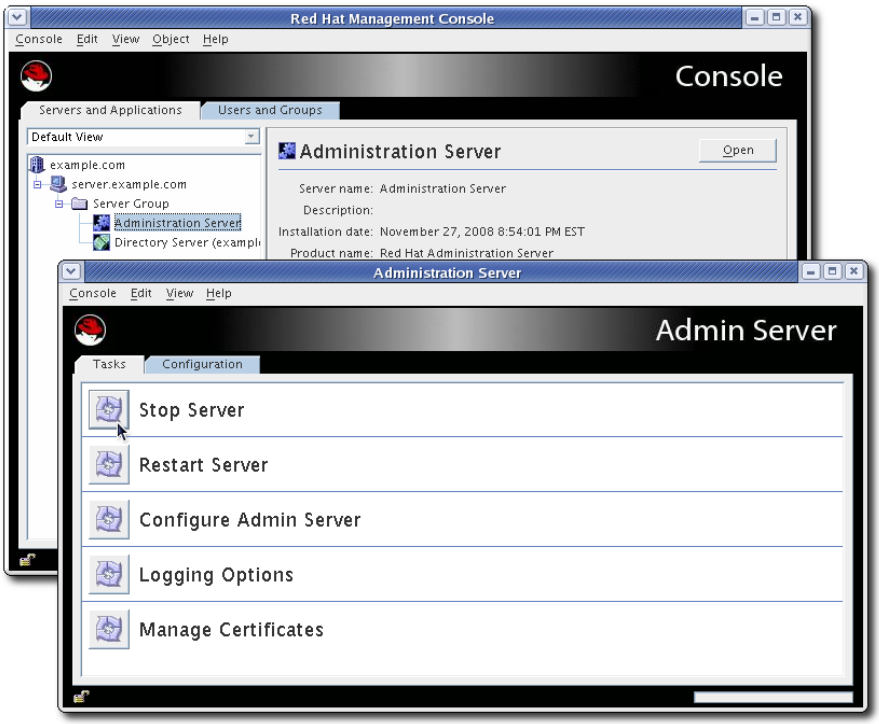


Figure 2.2. The Admin Server Console

NOTE

Make sure that Sun JDK or OpenJDK version 1.6.0 is set in the **PATH** before launching the Console. Run the following to see if the Java program is in the **PATH** and to get the version and vendor information:

```
java -version
```

2.4. Viewing Logs

Log files monitor activity for Admin Server and can help troubleshoot server problems. Admin Server logs use the Common Logfile Format, a broadly supported format that provides information about the server.

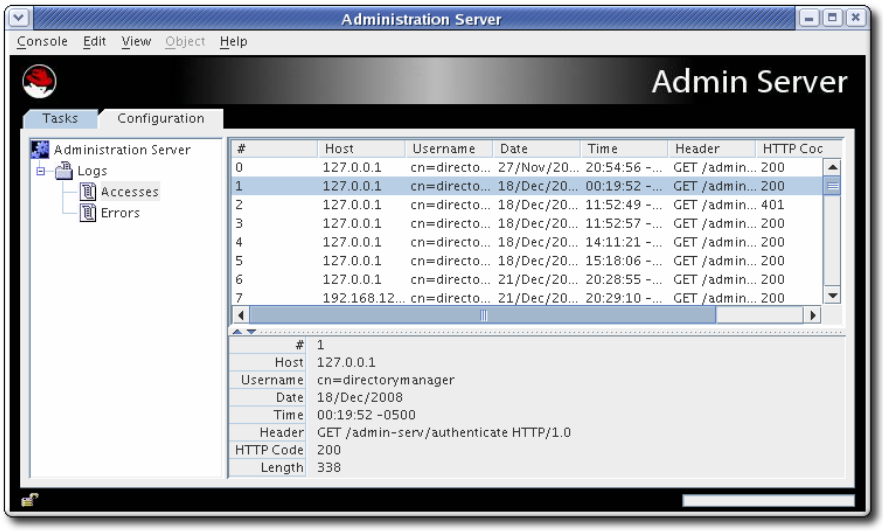
Admin Server generates two kinds of logs:

- *Access logs*. Access logs show requests to and responses from the Admin Server. By default, the file is located at **/var/log/dirsrv/admin-serv/access**.
- *Error logs*. Error logs show messages for errors which the server has encountered since the log file was created. It also contains informational messages about the server, such as when the server was started and who tried unsuccessfully to log on to the server. By default, the file is located at **/var/log/dirsrv/admin-serv/error**.

The logs can be viewed through Admin Server Console or by opening the log file.

2.4.1. Viewing the Logs through the Console

1. Open the Admin Server management window.
2. Click the **Configuration** tab.
3. Expand the **Logs** directory, and click the log file name, either **Accesses** or **Error**.



2.4.2. Viewing Logs in the Command Line

The access log, by default, is at **/var/log/dirsrv/admin-serv/access**. To view the access log, open it in an editor such as **vi**.

Access logs show connections to the Admin Server based on the IP address of the client, the username, and the method that the request was sent. Each line has the following format:

```
ip_address - bind_DN [timestamp -0500] "GET|POST cgi" HTTP_response bytes
```

Example logs are shown in Example 2.1, “Example Access Logs”.

Example 2.1. Example Access Logs

```
127.0.0.1 - cn=directory manager [23/Dec/2008:19:32:52 -0500] "GET /admin-
serv/authenticate HTTP/1.0" 200 338
192.168.123.121 - cn=directory manager [23/Dec/2008:19:33:14 -0500] "POST
/admin-serv/tasks/Configuration/ServerSetup HTTP/1.0" 200 244
192.168.123.121 - cn=directory manager [23/Dec/2008:19:33:16 -0500] "GET
/admin-serv/tasks/Configuration/ReadLog?op=count&name=access HTTP/1.0" 200 10
```

The error log, by default, is at **/var/log/dirsrv/admin-serv/errors**. To view the error log, open it in an editor such as **vi**.

Error logs record any problem response from the Admin Server. Like the access log, error logs also records entries based the client's IP address, along with the type of error message, and the message text:

```
[timestamp] [severity] [client ip_address error_message
```

The *severity* message indicates whether the error is critical enough for administrator intervention. **[warning]**, **[error]**, and **[critical]** require immediate administrator action. Any other severity means the error is informational or for debugging.

Example logs are shown in Example 2.2, “Example Error Logs”.

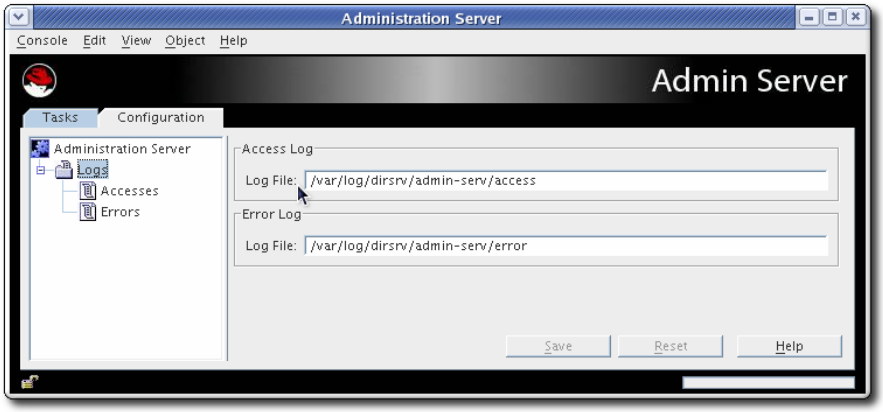
Example 2.2. Example Error Logs

```
[Mon Dec 22 23:44:59 2008] [notice] [client 127.0.0.1] admserv_host_ip_check:
ap_get_remote_host could not resolve 127.0.0.1
[Mon Dec 22 23:44:59 2008] [notice] [client 127.0.0.1] admserv_host_ip_check:
host [localhost.localdomain] did not match pattern [*.example.com] -will scan
aliases
[Mon Dec 22 23:44:59 2008] [notice] [client 127.0.0.1] admserv_host_ip_check:
host alias [localhost] did not match pattern [*.example.com]
[Mon Dec 22 23:44:59 2008] [notice] [client 127.0.0.1] admserv_check_authz():
passing [/admin-serv/authenticate] to the userauth handler
[Mon Dec 22 23:45:16 2008] [notice] [client 192.168.123.121]
admserv_host_ip_check: ap_get_remote_host could not resolve 192.168.123.121
```

2.4.3. Changing the Log Name in the Console

The access and error log files' names can be changed to rotate the files. This rotation has to be done manually to create new files if the existing log files become too large.

1. Open the Admin Server management window.
2. Click the **Configuration** tab.
3. Click **Logs** in the left panel.
4. In the **Logs** window on the right, enter the new log file name.



WARNING

The path to the log file is absolute and cannot be changed.

5. Click **OK** to save the changes.
6. Open the **Tasks** tab, and click the **Restart Server** button to restart the server and apply the changes.

2.4.4. Changing the Log Location in the Command Line

The access and error log files' names and locations can be changed to rotate the files. This rotation has to be done manually to create new files if the existing log files become too large. The location can be changed if the default location in **/var/log/dirsrv/admin-serv/** does not meet the application needs.

The Admin Server configuration is stored in two locations. The main entry is an LDAP entry in the Configuration Directory Server's **o=NetscapeRoot** database. The other is the **console.conf** file. Changing the log settings requires changing both settings.

1. Edit the Admin Server configuration entry in the Configuration Directory Server.
   a. Get the name of the Admin Server entry. Since the Admin Server entry has a special object class, **nsAdminConfig**, it is possible to search for the entry using that object class to retrieve the DN.

```
/usr/lib/mozldap/ldapsearch -D "cn=directory manager" -w secret -p 389
-h server.example.com -b "o=NetscapeRoot"
"(objectclass=nsAdminConfig)" dn

version:1
dn: cn=configuration, cn=admin-serv-example, cn=Red Hat Administration
Server, cn=Server Group, cn=server.example.com, ou=example.com,
o=NetscapeRoot
```

   b. The Admin Server entry can be edited using **ldapmodify**. The access and error log settings are stored in the ***nsAccessLogs*** and ***nsErrorLogs*** attributes, respectively. For example:

```
/usr/lib/mozldap/ldapmodify -D "cn=directory manager" -w secret -p 389
-h server.example.com

dn: cn=configuration, cn=admin-serv-example, cn=Red Hat Administration
Server, cn=Server Group, cn=server.example.com, ou=example.com,
o=NetscapeRoot
changetype:modify
replace:nsAccessLog
nsAccessLog:/var/log/dirsrv/admin-serv//access_new
```

Hit **Enter** twice to submit the operation, and then **Control+C** to close **ldapmodify**.

2. Open the Admin Server configuration directory.

```
cd /etc/dirsrv/admin-serv
```

3. Edit the **console.conf** file. For the access log, edit the path and filename in the **CustomLog** parameter. For the error log, edit the path and filename in the **ErrorLog** parameter.

```
CustomLog /var/log/dirsrv/admin-serv//access_new common
ErrorLog /var/log/dirsrv/admin-serv//error_new
```

Leave the term **common** after the access log path; this means that the access log is in the Common Log Format.

4. Restart the Admin Server.

```
service dirsrv-admin restart
```

2.4.5. Setting the Logs to Show Hostnames Instead of IP Addresses

By default, the logs show the IP address of the clients which connect to the Admin Server. This is faster for the Admin Server, since it does not have to do a DNS lookup for every connection. It is possible to set the Admin Server to perform a DNS lookup so that hostnames are used in the logs. Along with being friendlier to read and search, using hostnames instead of IP addresses also removes some unnecessary error messages about being unable to resolve hostnames.

To configure the Admin Server to perform DNS lookups:

1. Edit the **console.conf** file for the Admin Server.

```
cd /etc/dirsrv/admin-serv
vim console.conf
```

2. Set the **HostnameLookups** parameter to **on**. By default, this is turned off, so that IP addresses are recorded in logs instead of hostnames.

```
HostnameLookups on
```

2.5. Changing the Port Number

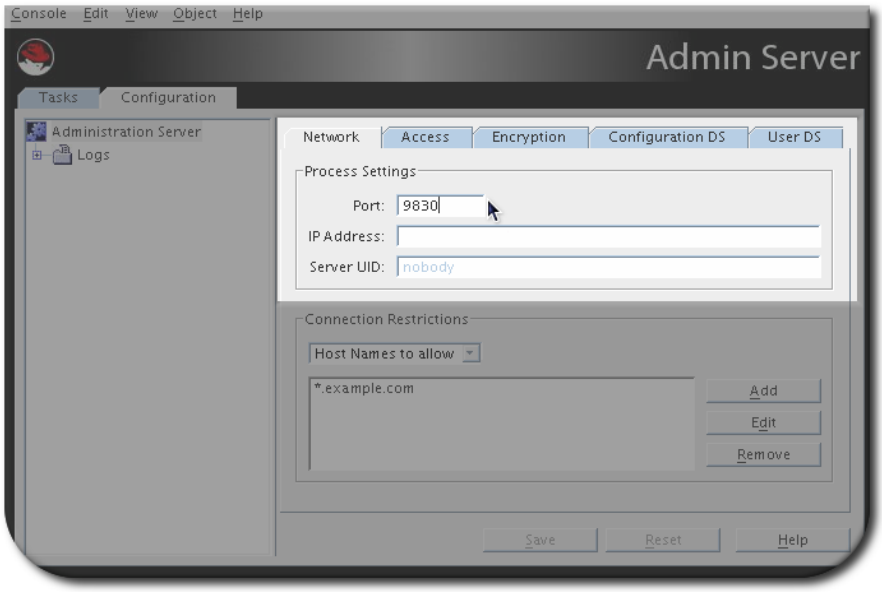
The *port number* specifies where an instance of Admin Server listens for messages.

The default port number for Admin Server is set when the instance is first installed and the configuration script, such as **setup-ds-admin.pl**, is run. The default port number is **9830**, although if that number

is in use, then the setup program will use a randomly-generated number larger than **1024** or one can assign any port number between **1025** and **65535**.

2.5.1. Changing the Port Number in the Console

1. Open the Admin Server management window.
2. Click the **Configuration** tab.
3. Click the **Network** tab.



4. Enter the port number for the Admin Server instance in the **Port** field. The Admin Server port number has a default number of **9830**.
5. Click **OK**.
6. Open the **Tasks** tab, and click the **Restart Server** button to restart the server and apply the changes.
7. Close the Console, and then restart the Console, specifying the new Admin Server port number in the connection URL.

2.5.2. Changing the Port Number in the Command Line

The port number for the Admin Server is **9830** by default.

The Admin Server configuration is stored in two locations. The main entry is an LDAP entry in the Configuration Directory Server's **o=NetscapeRoot** database. The other is the **console.conf** file. Changing the port number requires changing both settings.

1. Edit the Admin Server configuration entry in the Configuration Directory Server.
    a. Get the name of the Admin Server entry. Since the Admin Server entry has a special object class, **nsAdminConfig**, it is possible to search for the entry using that object class to retrieve the DN.

```
/usr/lib/mozldap/ldapsearch -D "cn=directory manager" -w secret -p 389
-h server.example.com -b "o=NetscapeRoot"
"(objectclass=nsAdminConfig)" dn

version:1
dn: cn=configuration, cn=admin-serv-example, cn=Red Hat Administration
Server, cn=Server Group, cn=server.example.com, ou=example.com,
o=NetscapeRoot
```

b. The Admin Server entry can be edited using **ldapmodify**. The port number is set in the ***nsServerPort*** attribute. For example:

```
/usr/lib/mozldap/ldapmodify -D "cn=directory manager" -w secret -p 389
-h server.example.com

dn: cn=configuration, cn=admin-serv-example, cn=Red Hat Administration
Server, cn=Server Group, cn=server.example.com, ou=example.com,
o=NetscapeRoot
changetype:modify
replace:nsServerPort
nsServerPort:10030
```

Hit **Enter** twice to submit the operation, and then **Control+C** to close **ldapmodify**.

2. Open the Admin Server configuration directory.

```
cd /etc/dirsrv/admin-serv
```

3. Edit the **Listen** parameter in the **console.conf** file.

```
Listen 0.0.0.0:10030
```

4. Restart the Admin Server.

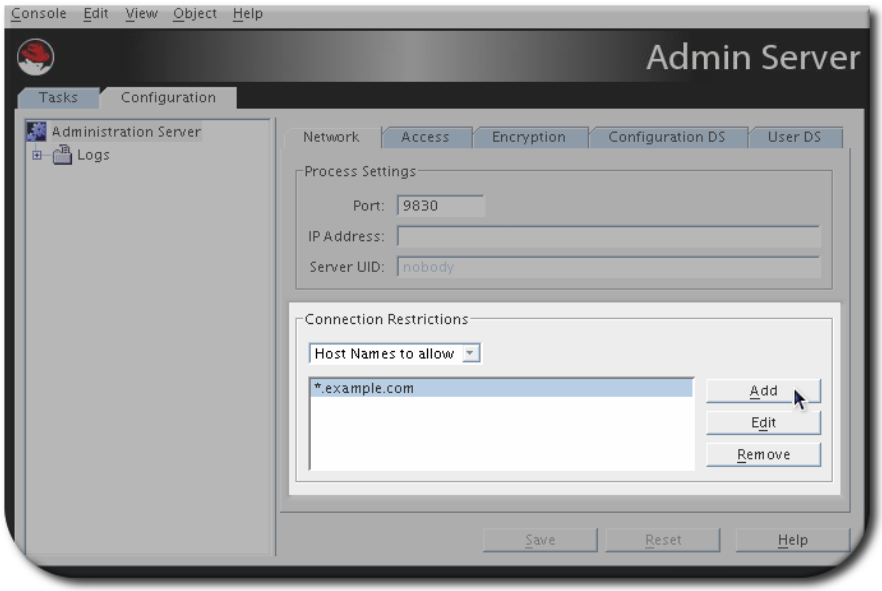
```
service dirsrv-admin restart
```

2.6. Setting Host Restrictions

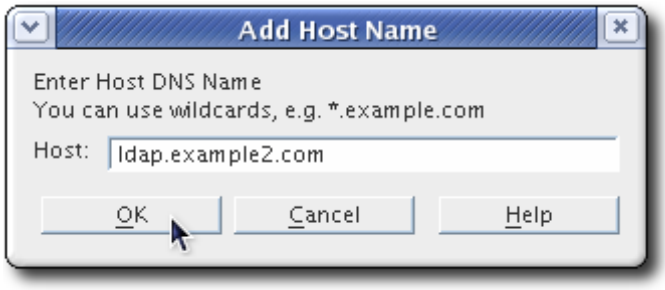
Connection restrictions specify which hosts are allowed to connect to the Admin Server. You can list these hosts by DNS name, IP address, or both. Only host machines listed within the connection restriction parameters are allowed to connect to the Admin Server. This setting allows wildcards within a domain or an IP address range to make setting connection restrictions simpler.

2.6.1. Setting Host Restrictions in the Console

1. Open the Admin Server management window.
2. Click the **Configuration** tab.
3. Click the **Network** tab.
4. The **Connection Restrictions** area displays a list of hosts allowed to connect to the Admin Server. The drop-down list specifies whether the list entries are added by DNS name or by IP address. The list is evaluated first by host names, and then by IP addresses.



5. Click the **Add** button to add another host to the list of allowed computers. To add a hostname, make sure the drop-down list at the top reads **Host Names to allow**; to add an IP address, select **IP Addresses to allow**.
6. Fill in the host information.



   The * wildcard can be used to specify a group of hosts. For instance, ***.example.com** allows all machines in the **example.com** domain to access the instance. Entering **205.12.*.** allows all hosts whose IP addresses begin with **205.12** to access the instance.

   When specifying IP address restrictions, include all three separating dots. If you do not, the Admin Server returns an error message.
7. Click **OK** to close the **Add...** dialog box, and then click the **Save** button to save the new host.
8. Open the **Tasks** tab, and click the **Restart Server** button to restart the server and apply the changes.

To change the information for a host or IP address listed, click the **Edit** button and change the given information. To remove an allowed host or IP address, select the host from the list, and click **Remove**. **Admin Server**.

2.6.2. Setting Host Restrictions in the Command Line

Host restrictions sets rules for what network clients can connect to the Admin Server and, therefore, to services which use the Admin Server. There are two kinds of host restrictions, restrictions based on the host or domain name and restrictions based on the IP address.

The Admin Server host restrictions are set in the main configuration entry in the Configuration Directory Server's **o=NetscapeRoot** database. There are two attributes for setting host restrictions, ***nsAdminAccessAddresses*** and ***nsAdminAccessHosts*** for IP addresses and hostnames, respectively.

NOTE

The Admin Server supports both IPv4 and IPv6 addresses.

The Admin Server entry can be edited using **ldapmodify**.

To set host restrictions:

1. Get the name of the Admin Server entry. Since the Admin Server entry has a special object class, **nsAdminConfig**, it is possible to search for the entry using that object class to retrieve the DN.

```
/usr/lib/mozldap/ldapsearch -D "cn=directory manager" -w secret -p 389 -h
server.example.com -b "o=NetscapeRoot" "(objectclass=nsAdminConfig)" dn

version:1
dn: cn=configuration, cn=admin-serv-example, cn=Red Hat Administration
Server, cn=Server Group, cn=server.example.com, ou=example.com,
o=NetscapeRoot
```

2. To set IP address-based restrictions, edit the ***nsAdminAccessAddresses*** attribute.

```
/usr/lib/mozldap/ldapmodify -D "cn=directory manager" -w secret -p 389 -h
server.example.com

dn: cn=configuration, cn=admin-serv-example, cn=Red Hat Administration
Server, cn=Server Group, cn=server.example.com, ou=example.com,
o=NetscapeRoot
changetype:modify
replace:nsAdminAccessAddresses
nsAdminAccessAddresses:72.5.*.*
```

   Hit **Enter** twice to submit the operation, and then **Control+C** to close **ldapmodify**.

   The ***nsAdminAccessAddresses*** value can use wildcards to allow ranges. For example, to allow all IP addresses:

```
nsAdminAccessAddresses:*
```

   To allow only a subset of addresses on a local network:

```
nsAdminAccessAddresses:192.168.123.*
```

3. To set hostname or domain-based restrictions, edit the ***nsAdminAccessHosts*** attribute.

```
/usr/lib/mozldap/ldapmodify -D "cn=directory manager" -w secret -p 389 -h
server.example.com

dn: cn=configuration, cn=admin-serv-example, cn=Red Hat Administration
Server, cn=Server Group, cn=server.example.com, ou=example.com,
o=NetscapeRoot
changetype:modify
replace:nsAdminAccessHosts
nsAdminAccessHosts:*.example.com
```

   Hit **Enter** twice to submit the operation, and then **Control+C** to close **ldapmodify**.

4. Restart the Admin Server to apply the changes.

```
service dirsrv-admin restart
```

2.7. Changing the Admin User's Name and Password

During installation, you are asked to enter a username and password for the *Configuration Administrator*, the user authorized to access and modify the entire configuration directory. The Configuration Administrator entry is stored in the directory under the following DN:

```
uid=userID,ou=Administrators,ou=TopologyManagement,o=NetscapeRoot
```

The Configuration Administrator's username and password are managed through the Directory Server and are represented in an LDAP entry; this is described in the *Directory Server Administrator's Guide*.

During installation, the Configuration Administrator's username and password are used to automatically create the *Administration Server Administrator*. This user can perform a limited number of administrative tasks, such as starting, stopping, and restarting servers in a local server group. The Administration Server Administrator is created for the purpose of logging into the Console when the Directory Server is not running.

The Administration Server Administrator does not have an LDAP entry; it exists only as an entity in a local configuration file, **/etc/dirsrv/admin-serv/admpw**.

Even though they are created at the same time during installation, and are identical at that time, the Configuration Administrator and Administration Server Administrator are two separate entities. If you change the username or password for one in the Console, the Console does not automatically make the same changes for the other.

The Administration Server Administrator has full access to all configuration settings in the Admin Server. The information for the admin user is set on the **Access** tab in the Console.

NOTE

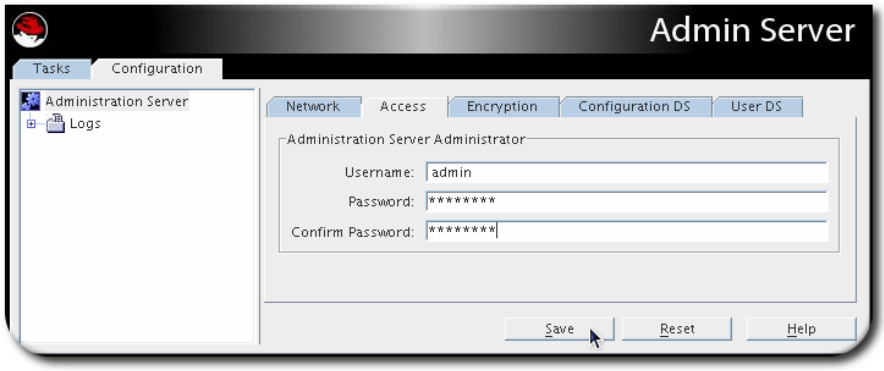
The Admin Server administrator username and password are stored in the **/etc/dirsrv/admin-serv/admpw** file. For example:

```
admin:{SHA}W6ph5Mm5Pz8GgiULbPgzG37mj9g=
```

The password is encrypted and cannot be changed directly in the **admpw** file. The username can be changed in this file, but cannot be used to log into the Console unless the password is updated in the Console first. For this reason, it is better to edit the Administration Server Administrator username and password only through the Admin Server Console.

To change the Administration Server Administrator's ID or password:

1. Open the Admin Server management window.
2. Click the **Configuration** tab.
3. Click the **Access** tab.
4. Change the admin user's name or password. The username is the ID given for logging into the Admin Server.



5. Click **Save**.

2.8. Working with SSL

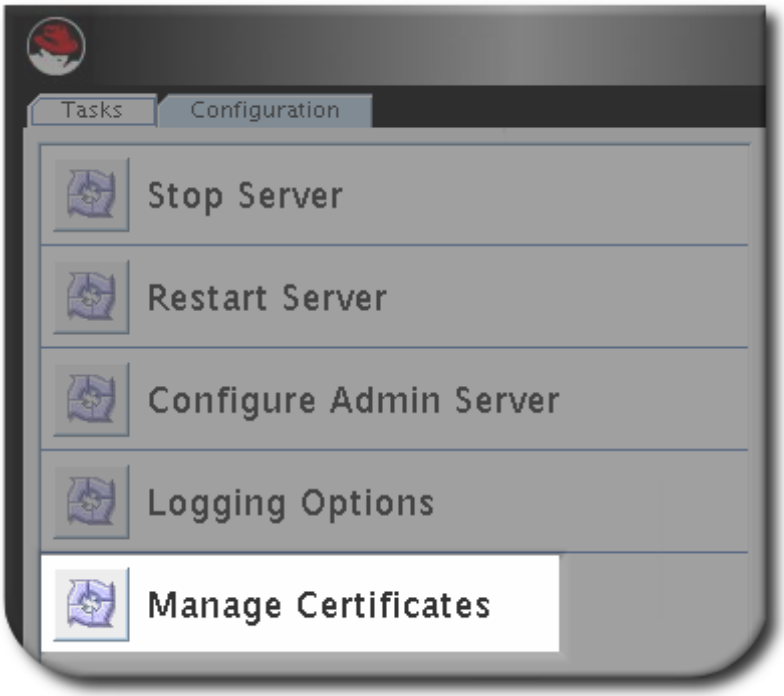
The Admin Server can run over HTTPS (secure HTTP) if SSL is enabled on the server. There are steps to enabling SSL:

1. Generating and submitting a certificate request.
2. Receiving and installing the certificate.
3. Trusting the certificate authority (CA) which issued the certificate.
4. Changing the Admin Server configuration to allow SSL connections.

2.8.1. Requesting and Installing a Server Certificate

The Admin Server Console has a tool, the **Certificate Request Wizard**, which generates a valid certificate request to submit to any certificate authority (CA).

1. In the Admin Server Console, select the **Tasks** tab, and click **Manage Certificates**.



2. Create a certificate request.
   a. Select the **Server Certs** tab, and click the **Request** button.
      Click **Next**.
   b. Enter the **Requester Information** in the blank text fields, then click **Next**.

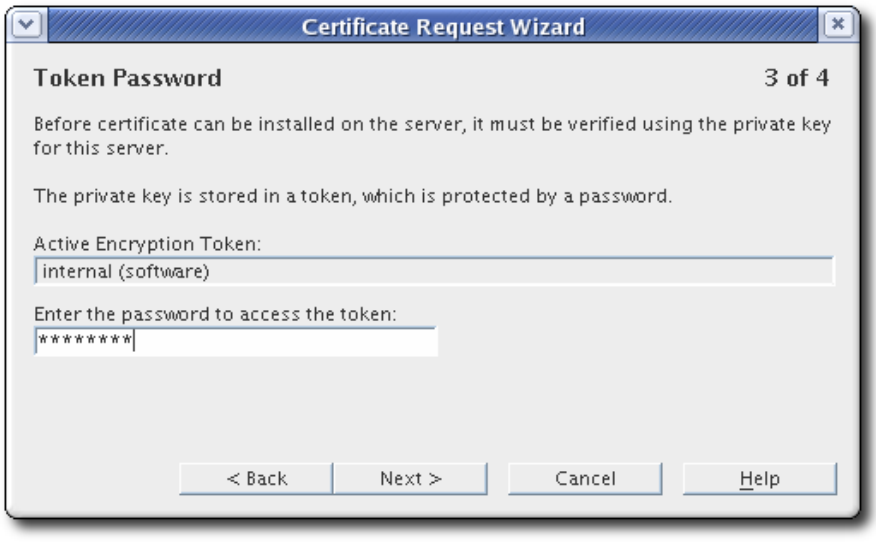
- *Server Name.* The fully qualified hostname of the Directory Server as it is used in DNS and reverse DNS lookups; for example, **`server.example.com`**. The server name is critical for client-side validation to work, which prevents man-in-the-middle attacks.

IMPORTANT

This *must* be a valid hostname that can be resolved correctly by all Admin Server clients, or TLS/SSL will not work.

- *Organization.* The legal name of the company or institution. Most CAs require this information to be verified with legal documents such as a copy of a business license.
- *Organizational Unit. Optional.* A descriptive name for the organization within the company.
- *Locality. Optional.* The company's city name.
- *State or Province.* The full name of the company's state or province (no abbreviations).
- *Country.* The two-character abbreviation for the country's name (ISO format). The country code for the United States is US.

c. Enter the password that used to protect the private key, and click **`Next`**.



The **Next** button is grayed out until a password is supplied.

3. The **Request Submission** dialog box provides two ways to submit a request: directly to the CA (if there is one internally) or manually. To submit the request manually, select **Copy to Clipboard** or **Save to File** to save the certificate request which will be submitted to the CA.

To submit the request to a CA manually, either email it or use the web form for the CA, if one is available. Copy the certificate request information and submit it using the appropriate method.

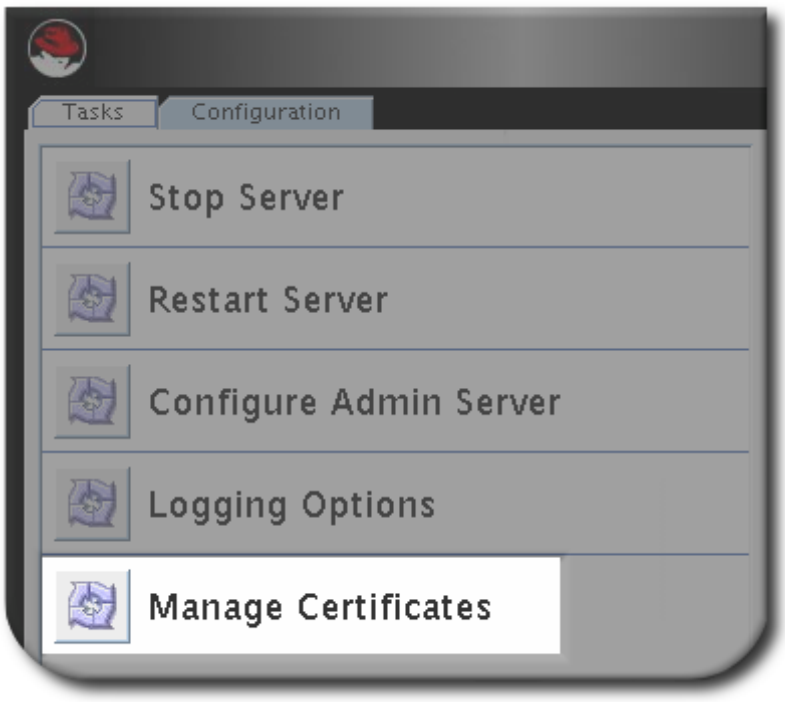
```
-----BEGIN NEW CERTIFICATE REQUEST-----
MIIBrjCCARcCAQAwbjELMAkGA1UEBhMCVXMxEzARBgNVBAgTCkNBTElGT1J
OSUExLDAqBgVBAoTI25ldHNjYXBlIGNvbW11bmljYXRpb25zIGNvcnBvcmF
0aW9uMRwwGgYDVQQDExNtZWxsb24ubmV0c2NhcGUuY29tMIGfMA0GCSqGSI
b3DQEBAQUAA4GNADCBiQKBgQCwAbskGh6SKYOgHy+UCSLnm3ok3X3u83Us7
ug0EfgSLR0f+K41eNqqRftGR83emqPLDOf0ZLTLjVGJaH4Jn4l1gG+JDf/n
/zMyahxtV7+mT8GOFFigFfuxaxMjr2j7IvELlxQ4IfZgWwqCm4qQecv3G+N
9YdbjveMVXW0v4XwIDAQABoAAwDQYK
------END NEW CERTIFICATE REQUEST-----
```

4. Wait for the CA to respond with the server certificate; this can be as short as a few hours for an internal CA or as long as several weeks for a third-party CA.
5. Save the issued certificate to a file.

NOTE

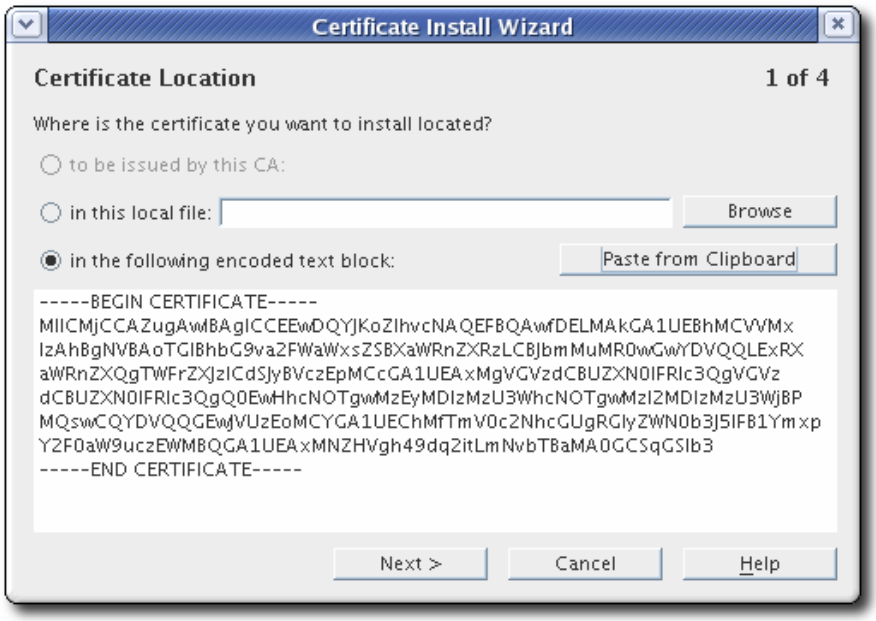
Keep a backup of the certificate data in a safe location. If the system ever loses the certificate data, the certificate can be reinstalled using the backup file.

6. Install the certificate.
   a. Select the **Tasks** tab, and click **Manage Certificates**.



b. Select the **Server Certs** tab, and click **Install**.

c. Give the absolute path to the certificate (*In this file* radio button) or paste the certificate text in the text box (*In the following encoded text block* radio button), then click **Next**.



d. Check that the certificate information displayed is correct, and click **Next**.

e. Name the certificate, and click **Next**.

f. Provide the password that protects the private key. This password is the same as the one provided in step c.

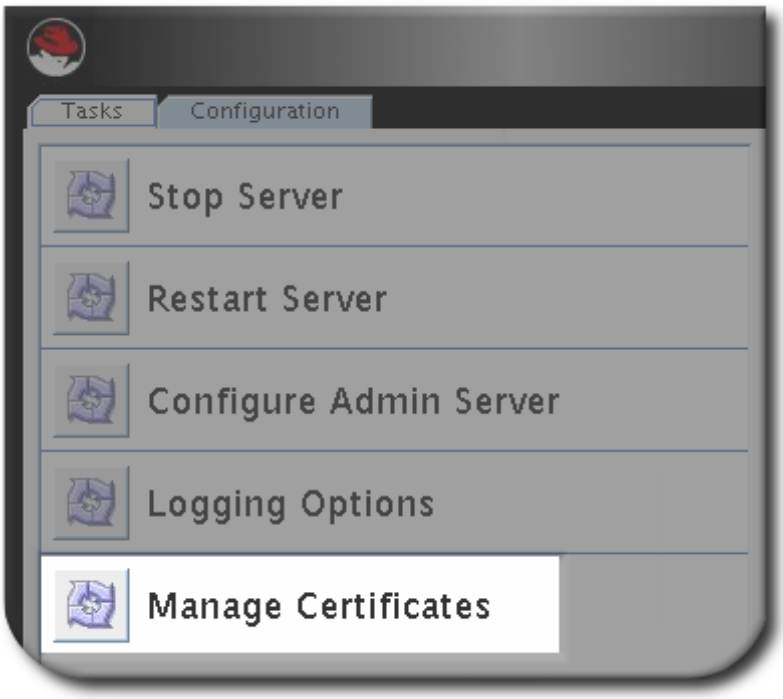
After installing the server certificate, configure the Admin Server to trust the CA which issued the server's certificate.

2.8.2. Installing a CA Certificate

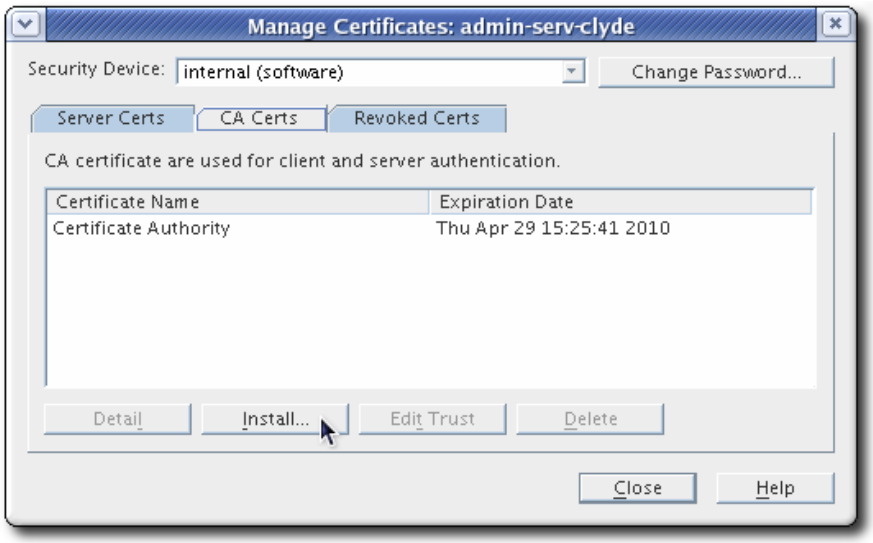
To configure the Admin Server to trust the CA, obtain the CA's certificate and install it into the server's certificate database. Some commercial CAs provide a web site that allow users to automatically download the certificate, while others will email it back to users.

After receiving the CA certificate, use the **Certificate Install Wizard** to configure the Admin Server to trust the CA.

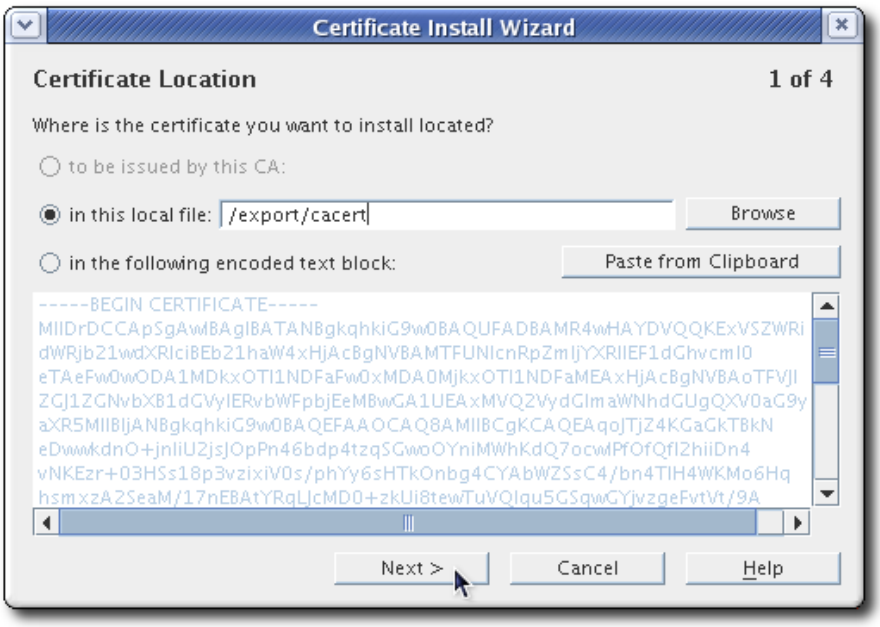
1. In the Admin Server Console, select the **Tasks** tab, and click **Manage Certificates**.



2. Go to the **CA Certs** tab, and click **Install**.



3. If the CA's certificate is saved to a file, enter the path in the field provided. Alternatively, copy and paste the certificate, including the headers, into the text box. Click **Next**.



4. Click **Next** to move through the panels that show the CA certificate information and the certificate name.
5. Select the purpose of trusting this certificate authority; it is possible to select both options:
   - *Accepting connections from clients (Client Authentication).* The server checks that the client's certificate has been issued by a trusted certificate authority.
   - *Accepting connections to other servers (Server Authentication).* This server checks that the directory to which it is making a connection (for replication updates, for example) has a certificate that has been issued by a trusted certificate authority.

6. Click **Done**.

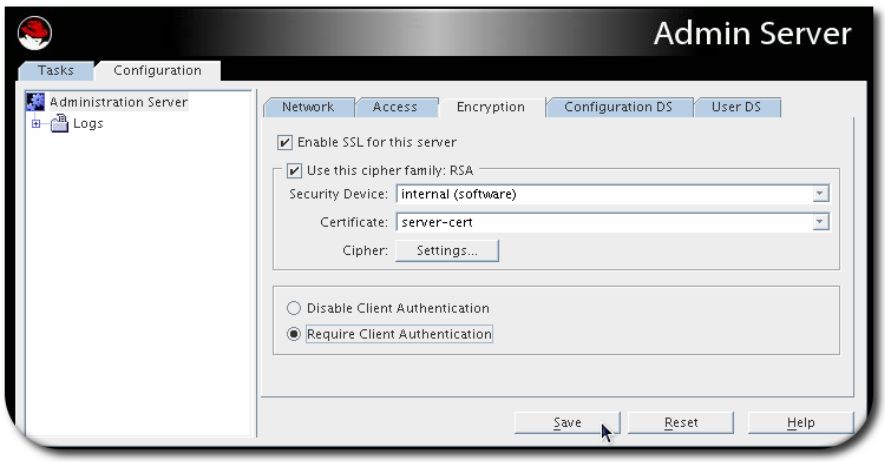
After installing the CA certificate, it is listed in the **CA Certificates** tab in the Console.

NOTE

If a CA certificate is incorrectly generated, it is listed in the **Server Certificates** tab in the Console rather than the **CA Certificates** tab. The certificate still works as a CA certificate, even though it is listed in the wrong tab.
Still, request certificates from a real certificate authority to minimize the risk of using an incorrectly generated certificate and breaking SSL/TLS in the Admin Server.

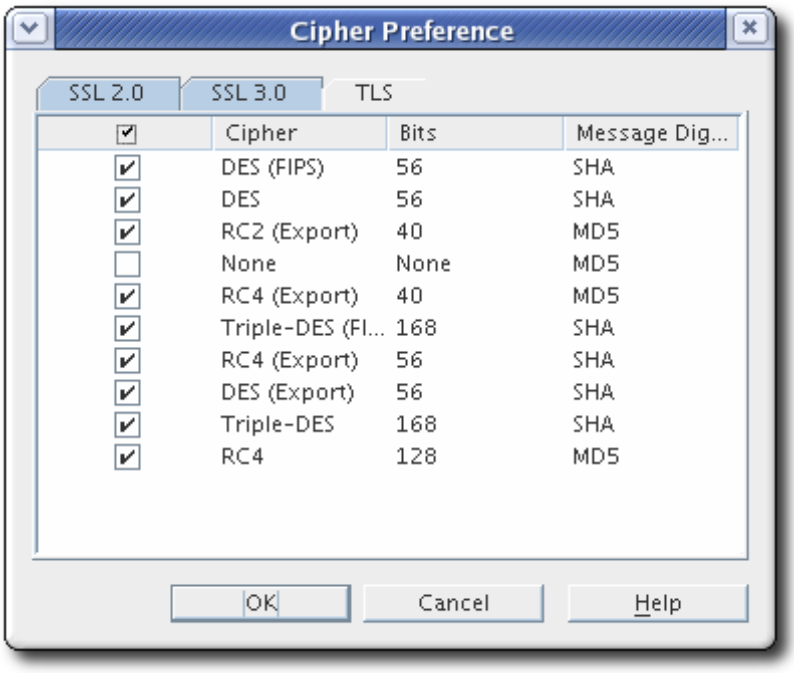
2.8.3. Enabling SSL

1. Open the Admin Server management window.
2. Click the **Configuration** tab.
3. Click the **Encryption** tab.



4. Select the **Enable SSL for this server** checkbox.
5. Select the **Use this cipher family: RSA** checkbox.
6. Choose the security device where the key is stored. By default, the key is stored in the local key database, **Internal (Software-based)**. If the key is stored on an external device (such as a smart card), select that device from the menu.
7. Choose the server certificate to use with SSL.

   The certificates available in the token certificate database are listed in the drop-down menu.
8. Click the **Settings** button to set the ciphers that the Admin Server accepts for SSL/TLS connections.



9. Set whether to require client authentication to the Admin Server. Client authentication means that the server checks that the client's certificate has been issued by a trusted CA.
10. Click **Save**.

2.8.4. Creating a Password File for the Admin Server

Normally, if SSL is enabled, the server prompts for a security password when the Admin Server is

restarted:

```
Starting dirsrv-admin:
Please enter password for "internal" token:
```

The Admin Server can use a password file when TLS/SSL is enabled so that the server restarts silently, without prompting for the security password.

WARNING

This password is stored in clear text within the password file, so its usage represents a significant security risk. Do not use a password file if the server is running in an unsecured environment.

1. Open the Admin Server configuration directory.

   ```
   cd /etc/dirsrv/admin-serv
   ```

2. Create a password file named **`password.conf`**. The file should include a line with the token name and password, in the form *token:password*. For example:

   ```
   internal:secret
   ```

   For the NSS software crypto module (the default software database), the token is always called **`internal`**.

   The password file should be owned by the Admin Server user and set to read-only by the Admin Server user, with no access to any other user (mode **`0400`**).

   NOTE

   To find out what the Admin Server user ID is, run **`grep`** in the Admin Server configuration directory:

   ```
   cd /etc/dirsrv/admin-serv

   grep \^User console.conf
   ```

3. In the **`/etc/dirsrv/admin-serv`** directory, edit the **`nss.conf`** file to point to the location of the new password file.

   ```
   #   Pass Phrase Dialog:
   #   Configure the pass phrase gathering process.
   #   The filtering dialog program (`builtin' is a internal
   #   terminal dialog) has to provide the pass phrase on stdout.
   NSSPassPhraseDialog  file:/etc/dirsrv/admin-serv/password.conf
   ```

4. Restart the Admin Server. [1] For example:

   ```
   service dirsrv-admin restart
   ```

After TLS/SSL is enabled, then the Admin Server can only be connected to using HTTPS. All of the previous HTTP (standard) URLs for connecting to the Admin Server and its services no longer work. This is true whether connecting to the Admin Server using the Console or using a web browser.

2.9. Changing Directory Server Settings

The Admin Server stored information about the Directory Server *Configuration Directory* (which stores the instance configuration information) and the Directory Server *User Directory* (which stores the actual directory entries). These can be the same directory instance, but they do not have to be. The settings for both of those databases can be edited in the Admin Server configuration so that it communicates with a different Directory Server instance.

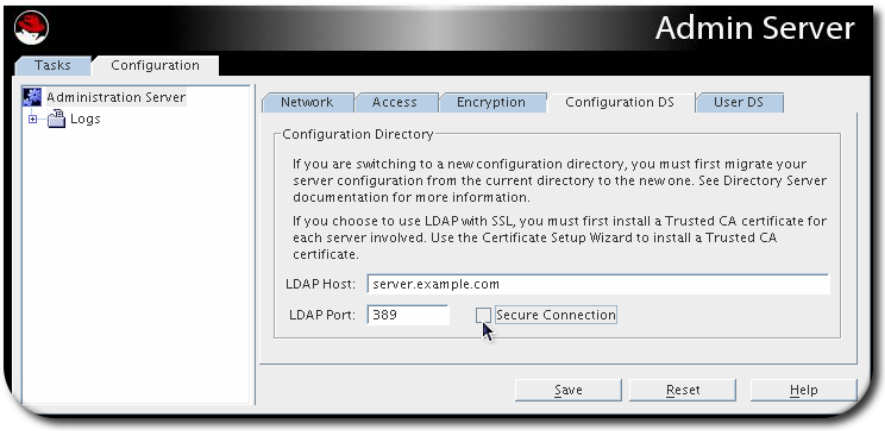
2.9.1. Changing the Configuration Directory Host or Port

Configuration data are stored under **`o=NetscapeRoot`** in the Configuration Directory. The configuration database contains server settings such as network topology information and server instance entries. When server configuration changes are stored in the configuration directory subtree.

WARNING

Changing the Directory Server host name or port number impacts the rest of the servers in the server group. Changing a setting here means the same change must be made for every server in the server group.

1. Open the Admin Server management window.
2. Click the **`Configuration`** tab.
3. Click the **`Configuration DS`** tab.
4. Set the Configuration Directory Server connection information.



   - The **`LDAP Host`** is the hostname of the Configuration Directory Server machine.
   - The **`LDAP Port`** is the port number to use for the Directory Server instance. The regular LDAP port is **`389`**; the default LDAPS (secure) port number is **`636`**.
   - Check the **`Secure Connection`** checkbox to use the secure port. Before checking this box, make sure that the Configuration Directory Server has enabled SSL.
5. Click **`Save`**.

2.9.2. Changing the User Directory Host or Port

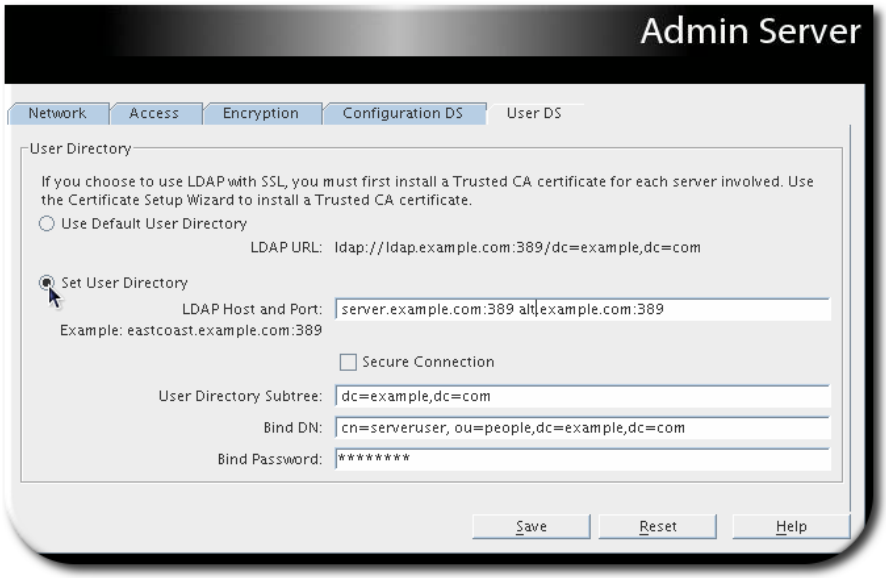
The user directory is used for authentication, user management, and access control. It stores all user and group data, account data, group lists, and access control instructions (ACIs).

There can be multiple user directories in a single deployment because using multiple user directories enhances overall performance for organizations which are geographically spread out, which have high usage, or have discrete divisions which benefit from individual directories.

Admin Server can be configured to authenticate users against multiple user directories.

To change the information for the user directory:

1. Open the Admin Server management window.
2. Click the **Configuration** tab.
3. Click the **User DS** tab.
4. Set the User Directory Server connection information.
5. Edit the user directory information.



The **Use Default User Directory** radio button uses the default user directory associated with the domain. To use multiple Directory Server instances or to use a different instance, select the **Set User Directory** radio button and set the required information:

- The **LDAP Host and Port** field specifies the location of the user directory instance.

  It is possible to configure multiple locations for the user directory for authentication and other directory functions; separate each location with a space. For example:

  ```
  server.example.com:389 alt.example.com:389
  ```

  NOTE

  If more than one location is given in the **LDAP Host and Port** field, the settings for the remaining fields will apply to all of those instances.

- Check the **Secure Connection** box to use SSL to connect to the user directory. *Only* select this if the Directory Server is already configured to use SSL.
- Give the **User Directory Subtree**. For example:

  ```
  dc=example,dc=com
  ```

Every location listed in the **LDAP Host and Port** field must contain that subtree and the subtree must contain the user information.

- Optionally, enter the **Bind DN** and **Bind Password** for the user which connects to the user directory.

6. Click **Save**.

[1] The commands to start, stop, and restart the Admin Server on platforms other than Red Hat Enterprise Linux 5 (32-bit) are described in Section 2.2.2, "Starting and Stopping Admin Server from the Command Line".

Chapter 3. Admin Express

3.1. Managing Servers in Admin Express

Admin Express provides a quick, simple web-based gateway to do basic management of servers. There are three tasks that can be performed through Admin Express:

- Stopping and starting the server
- Checking the server access, error, and audit logs
- Monitoring the progress and information for replication between Directory Servers

3.1.1. Opening Admin Express

The Admin Server services pages URL is the Admin Server host and port. For example:

```
http://ldap.example.com:9830/
```

The Admin Express page is always available at that URL.

NOTE

If SSL/TLS is enabled on the Admin Server, then the URL must use the prefix **`https:`** with the same port number. The standard HTTP URLs will not work.

```
https://ldap.example.com:9830/
```

3.1.2. Starting and Stopping Servers

On the main Admin Express page, there are buttons to turn servers off and on.

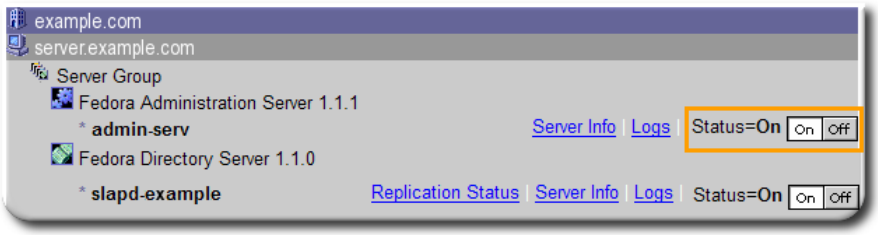


Figure 3.1. Stopping and Stopping Servers

IMPORTANT

If either the Admin Server or the Configuration Directory Server is turned off through the Admin Express page, then it must be restarted through the command line, not through the Admin Express **`On/Off`** buttons because Admin Express requires access to both the Admin Server and Configuration Directory Server in order to function.
Other Directory Server instances can be safely stopped and restarted through Admin Express.

3.1.3. Viewing Server Logs

Admin Express can show and search the access and error logs for Directory Server and Admin Server and the audit logs for the Directory Server.

1. In the Admin Express page, click the **Logs** link by the server name.
2. Select which log type to view, how many lines to return, and any string to search for, and click **OK**.

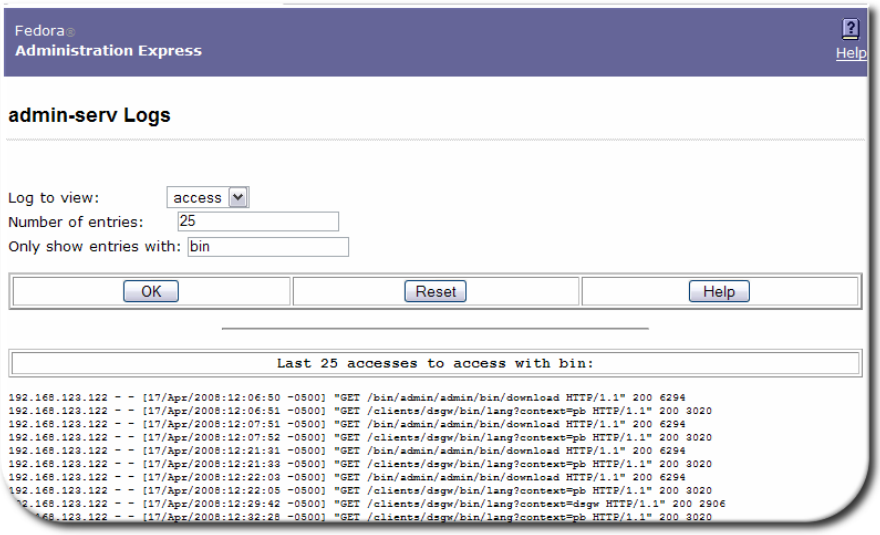


Figure 3.2. Checking Logs

3.1.4. Viewing Server Information

The **Server Info** link on the Admin Express page opens a page with the basic description of the server instance, such as the build number, installation date, and server port number. This is the same information displayed in the Console when an instance is selected.

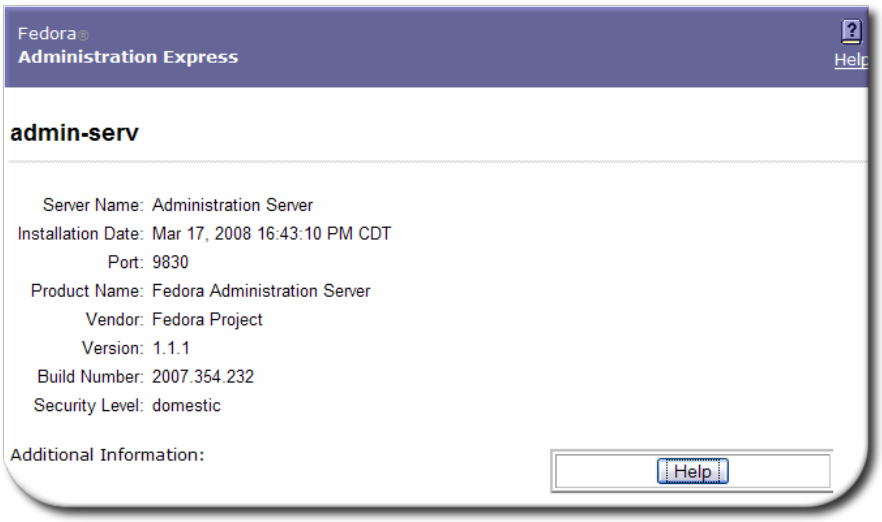


Figure 3.3. Checking Server Information

The Directory Server information is located in the **/etc/dirsrv/slapd-*instance_name*/dse.ldif** file; the Admin Server information is located in **.conf** files in the **/etc/dirsrv/admin-serv** directory.

3.1.5. Monitoring Replication from Admin Express

Admin Express has an option to monitor replication status in real-time, meaning that it shows the number of updates, times the most recent updates were sent, error and success messages, replication schedule, the replicated directory suffix, and other information. Unlike other ways of checking replication status, the Admin Express **Replication Status** page shows the real-time status of replication, including updates in progress, current changes sequence numbers, and the lag between when a change is made on the supplier and when that change is sent to the consumer.

Monitoring replication is set up using a simple configuration file which specifies which server to monitor and what supplier and consumer replicas to include in the status page.

When trying to monitor replication status through Admin Express, remember two things:

- The **Replication Status** page is only available for supplier servers. (It can be opened for other types of replicas; there's just no information available and has the message *The server is not a master or it has no replication agreement*.)
- The configuration file must be in a directory that is accessible to Admin Server, and the file must be readable by the Admin Server user. By default, the user is **nobody**.

  The user is set in the **console.conf** file. To check the user, use **grep** to return the value:

  ```
  grep \^User /etc/dirsrv/admin-serv/console.conf
  ```

  The configuration file should be readable by the Admin Server user and no other users, so consider resetting the permissions on the file:

  ```
  chmod 0400 filename
  ```

To view in-progress status of replication in Admin Express:

1. Create a configuration file. The configuration file lists all of the servers to monitor for replication, giving their hostname, port, the bind credentials to use, and then optional settings for aliases and time lag colors.

   ```
   #Configuration File for Monitoring Replication Via Admin Express
   [connection] Required. Gives the server host, port, supplier bind DN, and
   password.
   host1.example.com:389:cn=replication manager:mypassword
   host2.example.com:3891:cn=replication manager:altpassword

   [alias] Optional. Gives a friendly-name alias to the servers and consumers.

   M1 = host1.example.com:389
   M2 = host2.example.com:3891
   C1 = host3.example.com:3892
   C2 = host4.example.com:3890

   [color] Optional. Sets the color for the time lag boxes.
   0 = #ccffcc
   5 = #FFFFCC
   60 = #FFCCCC
   ```

   The configuration file must be in a directory that is accessible to the Admin Server, and the file must be readable by the Admin Server user. By default, the user is **nobody**.

   The user is set in the **console.conf** file. To check the user, use **grep** to return the value:

```
grep \^User /etc/dirsrv/admin-serv/console.conf
```

The configuration file should be readable by the Admin Server user and no other users, so consider resetting the permissions on the file:

```
chmod 0400 filename
```

2. In the Admin Server web page, click the **Admin Express** link, and log in.
3. Click the **Replication Status** link by the supplier server name.
4. Type the path to the configuration file in the **Configuration file** field. Also, set the refresh rate, which is how frequently the replication status page updates; the default is 300 seconds.

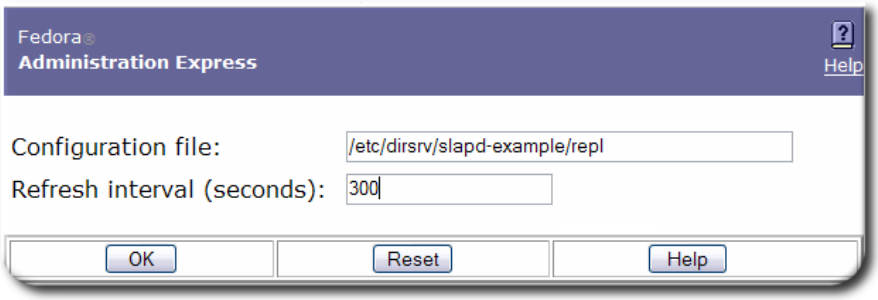


Figure 3.4. Viewing Replication Status

5. Click **OK**.

The **Replication Status** page shows the status for sending updates to every consumer listed in the configuration file.

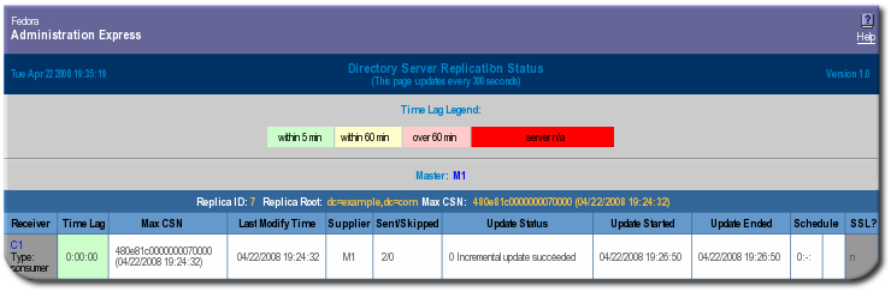


Figure 3.5. Viewing Replication Status

Table	Description
Table header	The table header shows the replica ID of the supplier replica, the replicated suffix root (such as **dc=example,dc=com**), and the maximum change state number (CSN) on the supplier. (The CSN is the ID of the latest change on the supplier, while the max CSN for the supplier shows the last update it received.)
Max CSN	The ID number of the most recent CSN the consumer has received that originated from the supplier.
Time lag	How long it takes for the consumer to receive

	updates from the supplier; this is the time difference between the supplier and the consumer's max CSNs. When a consumer is in sync with its supplier, the time lag is **0**.
Last Modify Time	Gives the time of the last update for the consumer (the time the last CSN entry was sent).
Supplier	Gives the name of the supplier sending updates to that consumer; this can be useful if a consumer receives updates from multiple suppliers or there are multiple suppliers being monitored on the **Replication Status** page.
Sent/Skipped	The number of changes that were sent from the supplier and the number skipped in the replication update. The numbers are kept in suppliers' memory only and are cleared if the supplier is restarted.
Update Status	The status code (and meaning) for the last update. This column can indicate a possible deadlock if *all* the suppliers complain that they cannot acquire a busy replica. It is normal for there to be a busy message if one of the suppliers is doing an update.
Update Start and End	The timestamps for when the most recent update process started and ended.
Schedule	The configured replication schedule. **0:-:** means that the consumer is continually updated by the supplier.
SSL?	Indicates whether the supplier connects to the consumer over SSL.

3.2. Configuring Admin Express

Admin Express can be edited for the page appearance, but most functionality is controlled through the web server or the Admin Server configuration and should be edited through those servers, not by editing the configuration files directly.

3.2.1. Admin Express File Locations

The directories for all of the Admin Express configuration files are listed in Table 3.1, “Admin Express File Directories”; the specific files are described in each section describing the different Admin Express page configurations.

Table 3.1. Admin Express File Directories

Directory	Description
/etc/dirsrv/admin-serv	Contains the **local.conf**, **httpd.conf**, and other configuration files which define the Admin Server and configure the web server.
/usr/share/dirsrv/html/	Contains the HTML files and graphics used for the Admin Express appearance.

3.2.2. Admin Express Configuration Files

The behavior for Admin Express is mostly set through the web server configuration and should not be edited. The other Admin Express configuration is set through directives which insert data or form fields.

There is not cascading style sheet (CSS) file to centralize the formatting for pages in Admin Express. All formatting is done inline with the tags or through **<style>** tags in the page head. For information on editing inline tags, see http://directory.fedoraproject.org/wiki/HTMLEditing.

3.2.2.1. Files for the Admin Server Welcome Page

The configuration files for the introductory page for Admin Express is located in the **/usr/share/dirsrv/dsgw/html** directory. One file sets the formatting, copyright text, and some web application text, **admserv.html**.

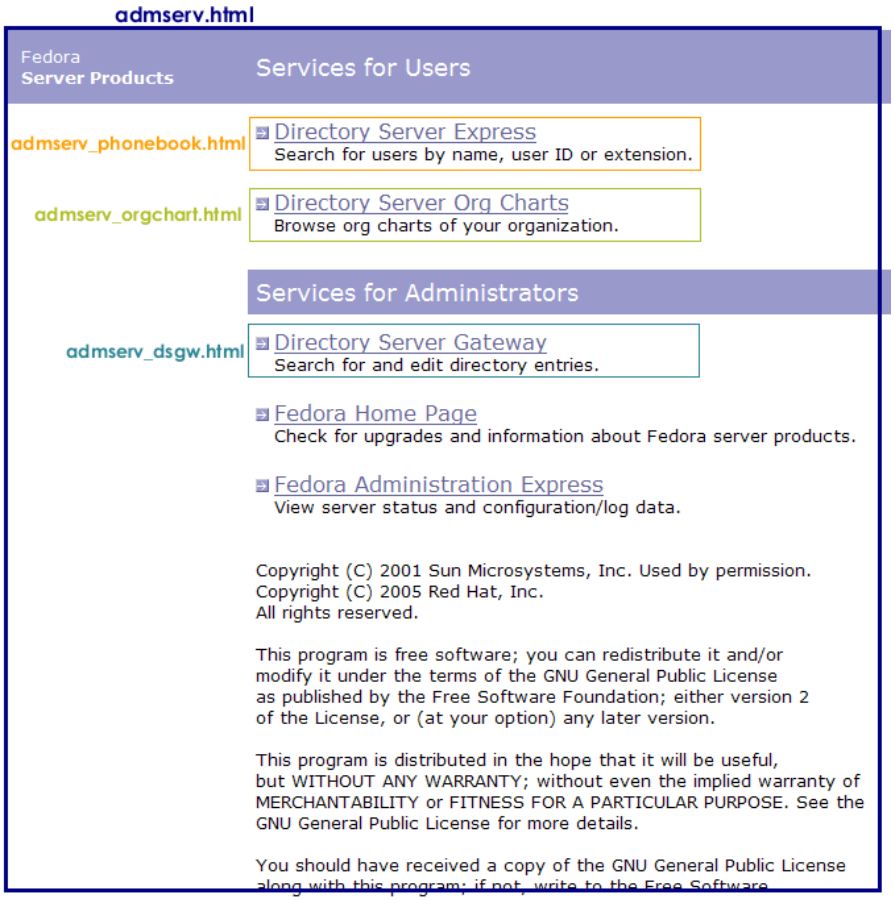


Figure 3.6. Intro Page Elements

All of the formatting for the page is set inline. The text files are inserted using the **INCLUDEIFEXISTS** directive.

```
  <tr valign="TOP">
    <td> </td>
    <td bgcolor="#9999cc" colspan="4"> <font color="white" size="+1"><font
face="Verdana, sans-serif">Services
      for Administrators</font></font></td>
    <td> </td>
  </tr>
  <tr valign="TOP">
    <td> </td>
    <td colspan="4">
      <table border="0" cellspacing="0" cellpadding="0">
        <tr valign="TOP">
          <td><img src="/icons/spacer.gif" width="6" height="6"></td>
          <td></td>
        </tr>
<!-- INCLUDEIFEXISTS admserv_dsgw.html -->
```

The text files themselves have inline formatting for the inserted table rows.

3.2.2.2. Files for the Replication Status Appearance

There are two pages for monitoring the replication status. The first is for the configuration page, which requires two files:

- The body of the page, **/usr/share/dirsrv/html/monreplication.html**
- The heading of the page, **/usr/share/dirsrv/html/htmladmin.html**

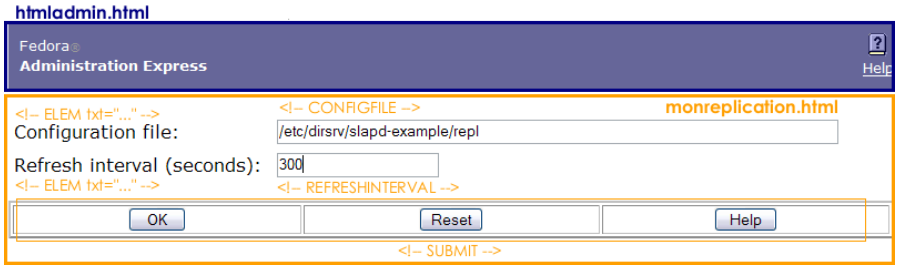


Figure 3.7. Monitoring Replication Setup Page Elements

The **Replication Status** page uses two script-related configuration files:

- The body of the page, which is configured in the replication monitoring script, **/usr/bin/repl-monitor.pl**
- Optionally, the configuration file for the replication monitoring, which can configure the time lag colors with the **[colors]** section
- The heading of the page, **/usr/share/dirsrv/html/htmladmin.html**

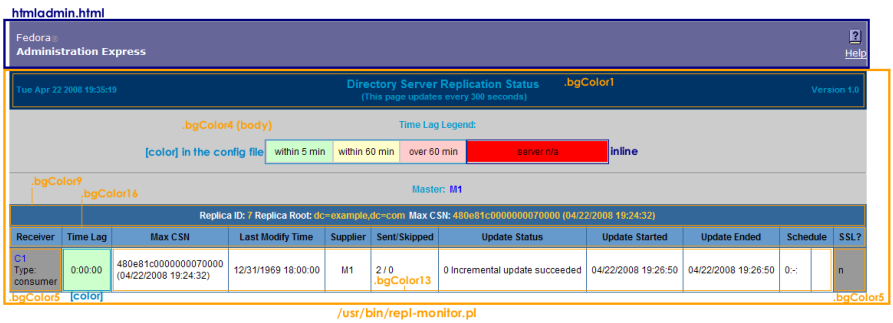


Figure 3.8. Monitoring Replication View Page Elements

The text for the table headings, labels, and page sections are set in the Perl script. For example:

```
#Print the header of consumer
   print "\n<tr class=bgColor16>\n";
   print "<th nowrap>Receiver</th>\n";
   print "<th nowrap>Time Lag</th>\n";
   print "<th nowrap>Max CSN</th>\n";
....
   print "</tr>\n";
```

The styles for the **Replication Status** page are printed in the Perl script in the <style> tag in the HTML header. Many of the classes are the same as those in the **style.css** for the other web applications. These can be edited in the Perl script or by uncommenting the stylesheet reference and supplying a CSS file. For example:

```
 # print the HTML header

   print "Content-type: text/html\n\n";
   print "<!DOCTYPE HTML PUBLIC \"-//W3C//DTD HTML 3.2//EN\"><html>\n";
   print "<head><title>Replication Status</title>\n";
   # print "<link type=text/css rel=stylesheet href=\"master-style.css\">\n";
   print "<style text/css>\n";
   print "Body, p, table, td, ul, li {color: #000000; font-family: Arial,
Helvetica, sans-serif; font-size: 12px;}\n";
   print "A {color:blue; text-decoration: none;}\n";
   print "BODY {font-family: Arial, Helvetica, sans-serif}\n";
   print "P {font-family: Arial, Helvetica, sans-serif}\n";
   print "TH {font-weight: bold; font-family: Arial, Helvetica, sans-serif}\n";
   print "TD {font-family: Arial, Helvetica, sans-serif}\n";
   print ".bgColor1  {background-color: #003366;}\n";
   print ".bgColor4  {background-color: #cccccc;}\n";
   print ".bgColor5  {background-color: #999999;}\n";
   print ".bgColor9  {background-color: #336699;}\n";
   print ".bgColor13 {background-color: #ffffff;}\n";
   print ".bgColor16 {background-color: #6699cc;}\n";
   print ".text8  {color: #0099cc; font-size: 11px; font-weight: bold;}\n";
   print ".text28 {color: #ffcc33; font-size: 12px; font-weight: bold;}\n";
   print ".areatitle {font-weight: bold; color: #ffffff; font-family: Arial,
Helvetica, sans-serif}\n";
   print ".page-title {font-weight: bold; font-size: larger; font-family: Arial,
Helvetica, sans-serif}\n";
   print ".page-subtitle {font-weight: bold; font-family: Arial, Helvetica, sans-
serif}\n";

   print "</style></head>\n<body class=bgColor4>\n";
```

3.2.2.3. Files for the Server Information Page

There are two files formatting the server information page:

- The body of the page, **/usr/share/dirsrv/html/viewdata.html**
- The heading of the page, **/usr/share/dirsrv/html/htmladmin.html**

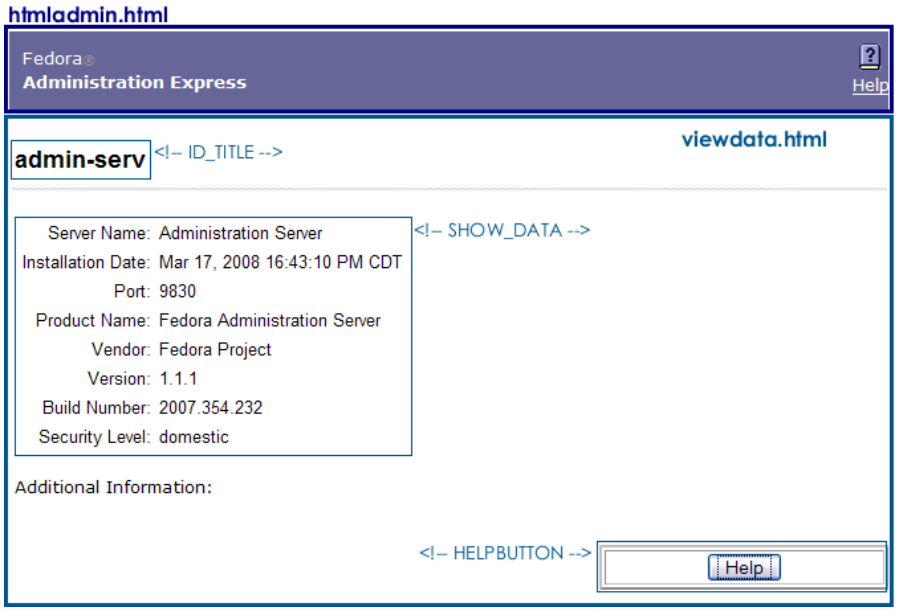


Figure 3.9. Server Information Page Elements

The **viewdata.html** file is very simple, using only the two directives to insert the server data, plus other directives to insert other information. For the Admin Server, the **SHOW_DATA** directive takes the information from the **/etc/dirsrv/admin-serv/local.conf** file. For the Directory Server, it takes the data from the **/etc/dirsrv/slapd-*instance_name*/dse.ldif** file. The **ID_TITLE** is the name of the server instance.

```
<body text="#000000" bgcolor="#FFFFFF" link="#666699" vlink="#666699"
alink="#333366">

<br>
<table BORDER=0 CELLSPACING=2 CELLPADDING=2 WIDTH="100%">
<!-- ID_TITLE -->
<p>
<!-- SHOW_DATA -->
<p>
<font face="PrimaSans BT, Verdana, sans-serif"><font size=-1>Additional
Information:</font></font>
<p>
<!-- CHECK_UPGRADE -->
<p>
<!-- SHOW_URL -->
</table>

<!-- HELPBUTTON -->

</body>
```

3.2.2.4. Files for the Server Logs Page

There are two files formatting the server logs page:

- The body of the page, **/usr/share/dirsrv/html/viewlog.html**
- The heading of the page, **/usr/share/dirsrv/html/htmladmin.html**

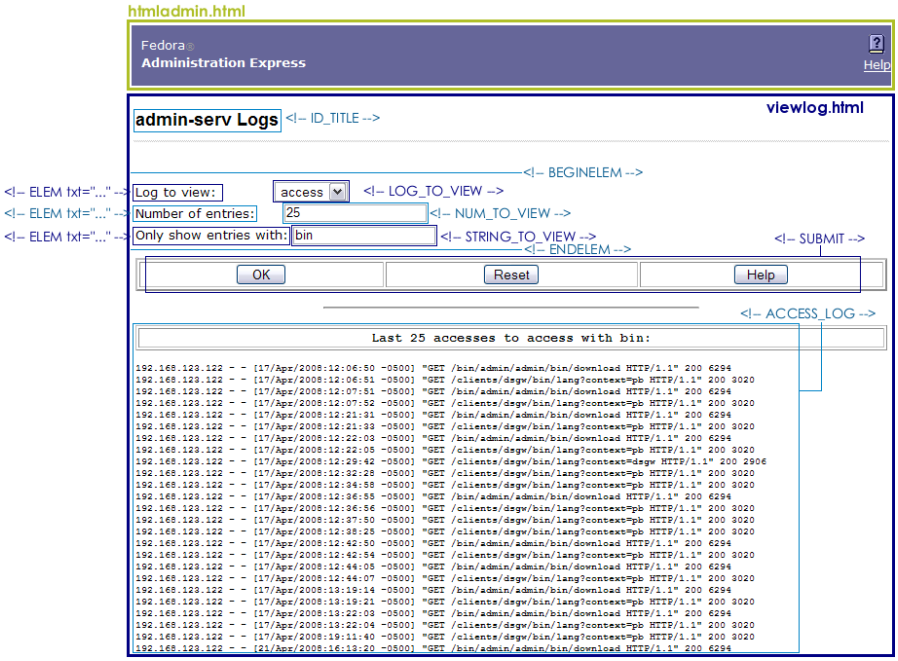


Figure 3.10. Log View Page Elements

The page information is set through the inserted directives. The server instance name is set in the **ID_TITLE** directive. The log is displayed through the **ACCESS_LOG** directives. The form at the top is formatted with directive pairs, one which sets the descriptive text and the other inserting the field type. For example, this sets the log type menu:

```
<form method=GET action=ViewLog>
<font face="PrimaSans BT, Verdana, sans-serif"><font size=-1>
<!-- BEGINELEM -->
<!-- ELEM txt="Log to view:            " -->
<!-- LOG_TO_VIEW -->
....
<!-- SUBMIT -->
</font></font>
</form>
```

3.2.3. Admin Express Directives

The Admin Express directives are HTML comments that are interpreted by the CGI scripts; these directives are used to set form fields and to pull data from the server configuration and log files.

Table 3.2. Admin Express Directives

Directive	Description	Example
ACCESS_LOG	Inserts the server log file.	<!-- ACCESS_LOG -->
ADMURL		<!-- ADMURL -->
BEGINELEM	Marks the opening of form input elements. This is always paired with **ENDELEM**.	<!-- BEGINELEM -->
CHECK_UPGRADE		<!-- CHECK_UPGRADE -->
ELEM	Inserts a text element. This has one argument, **txt=**, which defines the text to use.	<!-- ELEM txt="Field name here: " -->
ELEMADD	Inserts a text element. This has one argument, **txt=**, which defines the text to use.	<!-- ELEMADD txt="Field name here: " -->
ENDELEM	Marks the ending of form input elements. This is always paired with **BEGINELEM**.	<!-- ENDELEM -->
HELP_BUTTON	Inserts a button to open context-specific help.	<!-- HELP_BUTTON -->
HELPLINK	Inserts a link to the general Admin Express help file.	<!-- HELPLINK -->
HIDDEN_ID		<!-- HIDDEN_ID -->
ID_TITLE	Inserts the name of the server instance, such as **admin-serv** or **example** (if the Directory Server instance name is **slapd-example**)	<!-- ID_TITLE -->
INCLUDEIFEXISTS	Inserts the contents of the HTML file. The inserted file should include both the text and any HTML markup.	<!-- INCLUDEIFEXISTS "file.html" -->
LOG_TO_VIEW	Inserts a drop-down menu with the types of logs available to view.	<!-- LOG_TO_VIEW -->
NUM_TO_VIEW	Inserts a form field to set the number of lines to return.	<!-- NUM_TO_VIEW -->
REFRESHINTERVAL	Inserts a form field to set the refresh interval (in seconds) for replication monitoring.	<!-- REFRESHINTERVAL -->
SERVHOST		<!-- SERVHOST -->
SERVPORT		<!-- SERVPORT -->
SHOW_DATA	Inserts the server data from the configuration file, including the port number, installation date, and build number.	<!-- SHOW_DATA -->
SHOW_URL		<!-- SHOW_URL -->
SITEROOT		<!-- SITEROOT -->

STRING_TO_VIEW	Inserts a form field to use to set the search string for the logs.	<!-- STRING_TO_VIEW -->
SUBMIT	Inserts a three-button set: to save or submit the form; to reset the form; and to open a help topic.	<!-- SUBMIT -->

Chapter 4. Admin Server Command-Line Tools

Red Hat Admin Server has command-line utilities which make it easier to manage the Admin Server without having to launch the Admin Console.

This chapter explains where to find and how to use the Admin Server tools.

4.1. sec-activate

The **sec-activate** tool activates and deactivates SSL for the Admin Server.

- Location
- Syntax

Location

The **sec-activate** tool is located in the **/usr/lib/dirsrv/cgi-bin/** directory.

Syntax

```
sec-activate serverRoot SSLEnabled
```

Argument	Description
serverRoot	The location of the Admin Server configuration directory. The default location is **/etc/dirsrv/admin-serv**.
SSLEnabled	Sets whether to turn SSL **on** or **off** for the Admin Server.

For example:

```
sec-activate /etc/dirsrv/admin-serv on
```

4.2. modutil

The **modutil** tool is a command-line utility for managing PKCS #11 module information stored in **secmod.db** files or hardware tokens. **modutil** can perform a variety of security database operations:

- Adding and deleting PKCS #11 modules
- Changing passwords
- Setting defaults
- Listing module contents
- Enabling or disabling slots
- Enabling or disabling FIPS-140-1 compliance
- Assigning default providers for cryptographic operations
- Creating **key3.db**, **cert8.db**, and **secmod.db** security databases.

Security module database management is part of a process that typically involves managing key databases (**key3.db** files) and certificate databases (**cert8.db** files). The key, certificate, and PKCS #11 module management process generally begins with creating the keys and key database necessary to generate and manage certificates and the certificate database.

- Location
- Syntax
- Tasks and Options
- JAR Information File
- Examples of Using modutil

Location

The **modutil** tool is located in the **/usr/bin** folder.

Syntax

```
modutil task [option]
```

task is one of the commands listed in Table 4.1, “Task Commands for modutil” and *option* is from Table 4.2, “Options for modutil”. Each **modutil** command can take one task and one option.

Tasks and Options

You can use the **modutil** tool to perform a number of different tasks. These tasks are specified through the use of commands and options. Commands specify the task to perform. Options modify a task command.

NOTE

Each **modutil** command can take one task and one option.

Table 4.1, “Task Commands for modutil” describes what the **modutil** commands do and what options are available for each. Table 4.2, “Options for modutil” defines what the options do.

Table 4.1. Task Commands for modutil

Tasks	Description	Allowed Options
-add *moduleName*	Adds the named PKCS #11 module to the database.	-libfile *libraryFile* -mechanisms *mechanismList*
-changepw *token*	Changes the password for the named token. If the token has not been initialized, this option initializes it with the supplied password. In this context, the term *password* is equivalent to a personal identification number (PIN).	-pwfile *passwordFile* -newpwfile *newPasswordFile*
-create	Creates new **secmod.db**, **key3.db**, and **cert8.db** files. If any of these security databases already exist in a specified directory, the **modutil** tool displays an error message.	-dbdir *dbFolder*
-default *moduleName*	Sets the security mechanisms for which the named module is a default provider.	-mechanisms *mechanismList*
-delete *moduleName*	Deletes the named module. *You cannot delete the internal PKCS #11 module.*	
-disable *moduleName*	Disables all slots on the named module. To disable a specific slot, use the **-slot** option.	-slot *slotName*
-enable *moduleName*	Enables all slots on the named module. To enable a specific slot, use the **-slot** option.	-slot *slotName*
-fips true|false	Enables or disables FIPS-140-1 compliance for the internal module. **true** enabled FIPS compliance, and **false** disable FIPS compliance.	
-force	Disables the **modutil** tool's interactive prompts so it can be run from a script. Use this command only after manually testing each planned operation to check for warnings and to ensure that bypassing the prompts will cause no security lapses or loss of database integrity.	
-jar *JARfile*	Adds a new PKCS #11 module to the database. The module	-installdir *installation_directory*

	must be contained in the named JAR file. The JAR file identifies all files to install, the module name, and mechanism flags. It should also contain any files to be installed on the target machine, including the PKCS #11 module library and other files, such as documentation. The JAR file uses the Netscape Server PKCS #11 JAR format. See JAR Information File for more information on creating JAR files.	-tempdir *temporaryFolder*
-list *[moduleName]*	Shows basic information about the contents of the **secmod.db** file. To display detailed information about a particular module, including its slots and tokens, specify a value for *moduleName*.	
-undefault *moduleName*	Specifies the security mechanisms for which the named module will *not* be a default provider.	-mechanisms *mechanismList*

Table 4.2, "Options for modutil" describes the different options for the **modutil** task commands.

Table 4.2. Options for modutil

Option	Description
-dbdir *dbFolder*	Specifies a folder in which to access or create security module database files. This argument is required for every command. This should point to the Admin Server configuration directory. For example: `-dbdir /etc/dirsrv/admin-serv`
-installdir *installation_directory*	Specifies the root installation folder for the files supplied with the **-jar** *JAR-file* task. The *installation_directory* folder should be one in which it is appropriate to store dynamic library files.
-libfile *libraryFile*	Specifies the library file which contains the PKCS #11 module that is being added to the database. Use the full path to identify the file.
-mechanisms *mechanismList*	Specifies the security mechanisms for which a particular module is the default provider. The *mechanismList* is a colon-separated list of mechanism names. Enclose this list in quotation marks if it contains spaces. The module becomes a default provider for the listed mechanisms when those mechanisms are enabled. If more than one module is assigned as a mechanism's default provider, the mechanism's default provider is listed as undefined. The following mechanisms are currently available: • RSA • DSA • RC2, RC4, and RC5 • AES • DES • DH • SHA1 and SHA256 • SSL and TLS • MD2 and MD5 • RANDOM (for random number generation) • FRIENDLY (for certificates that are publicly readable).
-newpwfile *newPasswordFile*	Specifies a text file containing a token's new password. This allows the password to be automatically updated when using the **-changepw** command.
-nocertdb	Instructs **modutil** not to open the certificate or key databases. This has several effects: • When used with the **-changepw** command,

	no one is able to set or change the password on the internal module, because the password is stored in **key3.db**. • When used with the **-create** command, only a **secmod.db** file will be created; **cert8.db** and **key3.db** will not be created. • When used with the **-jar** command, signatures on the JAR file will not be checked.
-pwfile *passwordFile*	Specifies a text file containing a token's current password. This allows automatic entry of the password when using the **-changepw** command.
-slot *slotName*	Specifies a particular slot to enable or disable when using the **-enable** or **-disable** commands.
-tempdir *temporaryFolder*	Specifies a folder in which to store temporary files created by the **-jar** command. If a temporary folder is not specified, the current folder is used.

JAR Information File

JAR (Java Archive) is a platform-independent file format that aggregates many files into one. JAR files are used by **modutil** to install PKCS #11 modules. When **modutil** uses a JAR file, a special JAR information file must be included. This information file contains special scripting instructions and must be specified in the JAR file's **MANIFEST** file. Although the information file can have any name, it is specified using the **Pkcs11_install_script METAINFO** command.

For details on how to declare this **METAINFO** command in the **MANIFEST**, see http://docs.sun.com/source/816-6164-10/contents.htm.

If a PKCS #11 installer script is stored in the information file **pk11install**, the text file for the Signing Tool contains the following **METAINFO** tag:

```
+ Pkcs11_install_script: pk11install
```

The JAR information file in Example 4.1, “Example JAR File” has instructions for installing a PKCS #11 module on different platforms.

Example 4.1. Example JAR File

```
ForwardCompatible { IRIX:6.2:mips SUNOS:5.5.1:sparc }
 Platforms {
    Linux:2.0.32:x86 {
       ModuleName { "Fortezza Module" }
       ModuleFile { win32/fort32.dll }
       DefaultMechanismFlags{0x00000001 }
       CipherEnableFlags{ 0x00000001 }
       Files {
          win32/setup.exe {
             Executable
             RelativePath { %temp%/setup.exe }
          }
          win32/setup.hlp {
             RelativePath { %temp%/setup.hlp }
          }
          win32/setup.cab {
             RelativePath { %temp%/setup.cab }
          }
       }
    }
    Linux:2.0.32:x86 {
       EquivalentPlatform {WINNT::x86}
    }
    SUNOS:5.5.1:sparc {
       ModuleName { "Fortezza UNIX Module" }
       ModuleFile { unix/fort.so }
       DefaultMechanismFlags{ 0x00000001 }
       CipherEnableFlags{ 0x00000001 }
       Files {
          unix/fort.so {
             RelativePath{%root%/lib/fort.so}
             AbsolutePath{/usr/local/Red Hat/lib/fort.so}
             FilePermissions{555}
          }
          xplat/instr.html {
             RelativePath{%root%/docs/inst.html}
             AbsolutePath{/usr/local/Red Hat/docs/inst.html}
             FilePermissions{555}
          }
       }
    }
    IRIX:6.2:mips {
       EquivalentPlatform { SUNOS:5.5.1:sparc}
    }
 }
```

Creating a JAR information file involves writing a script that specifies which tasks to perform when installing a module. Keys, predefined commands, and options that **`modutil`** interprets can be used to specify different module installation procedures for different platforms.

Keys are case-insensitive strings that are grouped into three categories:

- Global Keys
- Per-Platform Keys
- Per-File Keys

Global Keys

Global keys define the platform-specific sections of the JAR information file. There are two global keys: **ForwardCompatible** and **Platforms**.

ForwardCompatible is an optional key that specifies a list of system architectures and operating systems that are compatible with later versions of the same architectures and operating systems. If the platform that **modutil** is installing the module on is not specified by the **Platforms** key, then the **ForwardCompatible** list is checked for any platforms that have the same OS and architecture in an earlier version. If one is found, its attributes are used for the current platform.

The **ForwardCompatible** key uses the following format:

```
ForwardCompatible { Solaris:5.5.1:sparc }
```

The platforms listed between the braces must have entries within the **Platforms** key.

Platforms is a required key that specifies a list of platforms. Each entry in the list is itself a key-value pair: the key is the name of the platform and the value list contains various attributes of the platform. The **ModuleName**, **ModuleFile**, and **Files** attributes must be specified for each platform unless an **EquivalentPlatform** attribute is specified. For more information, see Per-Platform Keys.

The platform string is in the following format:

```
system name:OS release:architecture
```

The **modutil** program obtains the system name, release number, and architecture values from the system on which the **modutil** tool is running. The following system names and platforms are currently recognized:

- HP-UX (**hppa1.1**)
- Linux (**x86**) is x86_64 recognized?
- Solaris (**sparc**)

For example:

```
Linux:5.2.0:x86
```

Per-Platform Keys

These keys have meaning only within an entry in the **Platforms** list.

ModuleName is a required key that specifies the common name for the module. This name acts as a reference to the module for Red Hat Communicator, the **modutil** tool, servers, or any other program that uses the Red Hat security module database.

ModuleFile is a required key that names the PKCS #11 module file (**.so**) for this platform. The file name should be a path that is relative to the JAR file location.

DefaultMechanismFlags is an optional key that specifies mechanisms for which this module is a default provider. This key-value pair is a bitstring specified in hexadecimal (0x) format. It is constructed as a bitwise OR of the string constants listed in Table 4.3, “Mechanisms and Default Mechanism Flags”. Omitting the **DefaultMechanismFlags** entry causes the value to to default to 0x0.

Table 4.3. Mechanisms and Default Mechanism Flags

Mechanism	Hexadecimal Bitstring Value
RSA	0x00000001
DSA	0x00000002
RC2	0x00000004
RC4	0x00000008
DES	0x00000010
DH	0x00000020
FORTEZZA	0x00000040
RC5	0x00000080
SHA1	0x00000100
MD5	0x00000200
MD2	0x00000400
RANDOM	0x08000000
FRIENDLY	0x10000000
OWN_PW_DEFAULTS	0x20000000
DISABLE	0x40000000

Files is a required key that lists the files that need to be installed for this module. Each entry in the file list is a key-value pair. The key includes the path to the file that is contained in the JAR archive and the value list contains the attributes of the file. At a minimum, you must specify either **RelativePath** or **AbsolutePath** for each file. If desired, you can specify additional attributes. For more information, see Per-File Keys.

The **EquivalentPlatform** key specifies that the attributes of the named platform should also be used for the current platform. Using this key saves time when more than one platform uses the same settings.

Per-File Keys

These keys have meaning only within an entry in a **Files** list. At a minimum, **RelativePath** or **AbsolutePath** must be specified. If both are specified, the relative path is tried first, and the absolute path is used only if a relative root folder is not provided by **modutil**.

The **RelativePath** key specifies the destination path of the file, relative to a folder indicated at installation. You can assign values for two variables in the relative path, **%root%** and **%temp%.** At run time, **%root%** is replaced with a folder in which files should be installed, such as the server's root folder. The **%temp%** folder is created at the beginning of the installation and destroyed at the end.

The purpose of **%temp%** is to hold executable files (such as setup programs) or files that are used by these programs. Files destined for the temporary folder are in place before any executable file is launched. They are not deleted until all executable files have finished.

The **AbsolutePath** key specifies the destination of the file as an absolute path. If both **RelativePath** and **AbsolutePath** are specified, **modutil** attempts to use the relative path. If it is unable to determine a relative path, it uses the absolute path.

The **Executable** key specifies that a file is to be executed during the course of the installation. Typically, this key is used to identify a setup program provided by a module vendor. The setup program

itself is specified by the **RelativePath** or **AbsolutePath** key.

For example, to specify that the **setup.exe** program (located in the **%temp%** folder) is an executable file, include the following lines in your JAR information file:

```
Executable
RelativePath { %temp%/setup.exe }
```

More than one file can be specified as executable, in which case the files are run in the order in which they are listed in the script file. Use the **Executable** key before a **RelativePath** or **AbsolutePath** key to indicate

The **FilePermissions** key specifies the access permissions to apply to a file. The **modutil** program interprets the key as a string of octal digits, following the standard UNIX format. This key is a bitwise OR of the string constants listed in Table 4.4, "File Permissions Specified Using FilePermissions". For example, to specify read and execute access for all users, enter **555** (bitwise 400 + 100 + 040 + 010 + 004 + 001).

The following table lists the file permissions that can be specified using **FilePermissions**.

Table 4.4. File Permissions Specified Using FilePermissions

File Permission	Bitstring Value
User Read	400
User Write	200
User Execute	100
Group Read	040
GroupWrite	020
Group Execute	010
Other Read	004
Other Write	002
Other Execute	001

Some platforms may not understand these permissions. The permissions are applied only if they make sense for the current platform. If this key is omitted, a default value of **777** (read, write, and execute for all users) is assumed.

Examples of Using modutil

- Creating Database Files
- Displaying Module Information
- Setting a Default Provider
- Enabling a Slot
- Enabling FIPS Compliance
- Adding a Cryptographic Module
- Installing a Cryptographic Module from a JAR File
- Changing the Password on a Token

Creating Database Files

To create a set of security management database files in a directory:

```
modutil -create -dbdir /etc/dirsrv/admin-serv

WARNING: Performing this operation while the browser is running could cause
corruption of your security databases. If the browser is currently running,
you should exit browser before continuing this operation. Type
'q <enter>' to abort, or <enter> to continue:

Creating "/etc/dirsrv/admin-serv/key3.db"...done.
Creating "/etc/dirsrv/admin-serv/cert8.db"...done.
Creating "/etc/dirsrv/admin-serv/secmod.db"...done.
```

Displaying Module Information

To retrieve detailed information about a specific module:

```
modutil -list -dbdir /etc/dirsrv/admin-serv

Using database directory /etc/dirsrv/admin-serv...

Listing of PKCS #11 Modules
-----------------------------------------------------------
  1. NSS Internal PKCS #11 Module
         slots: 2 slots attached
        status: loaded

         slot: NSS Internal Cryptographic Services
        token: NSS Generic Crypto Services

         slot: NSS User Private Key and Certificate Services
        token: NSS Certificate DB
-----------------------------------------------------------
```

Setting a Default Provider

To make a specific module the default provider for the RSA, DSA, and RC2 security mechanisms:

```
modutil -default "Cryptographic Module" -dbdir /etc/dirsrv/admin-serv -mechanisms
RSA:DSA:RC2

WARNING: Performing this operation while the browser is running could cause
corruption of your security databases. If the browser is currently running,
you should exit browser before continuing this operation. Type
'q <enter>' to abort, or <enter> to continue:

Using database directory /etc/dirsrv/admin-serv...
Successfully changed defaults.
```

Enabling a Slot

To enable a particular slot in a module:

```
modutil -enable "Cryptographic Module" -slot "Cryptographic Reader" -dbdir
/etc/dirsrv/admin-serv

WARNING: Performing this operation while the browser is running could cause
corruption of your security databases. If the browser is currently running,
you should exit browser before continuing this operation. Type
'q <enter>' to abort, or <enter> to continue:

Using database directory /etc/dirsrv/admin-serv...
Slot "Cryptographic Reader" enabled.
```

Enabling FIPS Compliance

To enable FIPS-140-1 compliance in the Admin Server's internal module:

```
modutil -fips true

WARNING: Performing this operation while the browser is running could cause
corruption of your security databases. If the browser is currently running,
you should exit browser before continuing this operation. Type
'q <enter>' to abort, or <enter> to continue:

FIPS mode enabled.
```

Adding a Cryptographic Module

To add a new cryptographic module to the database:

```
modutil -dbdir "/etc/dirsrv/admin-serv" -add "Cryptorific Module" -libfile
"/crypto.dll" -mechanisms RSA:DSA:RC2:RANDOM

WARNING: Performing this operation while the browser is running could cause
corruption of your security databases. If the browser is currently running,
you should exit browser before continuing this operation. Type
'q <enter>' to abort, or <enter> to continue:

Using database directory /etc/dirsrv/admin-serv...
Module "Cryptorific Module" added to database.
```

Installing a Cryptographic Module from a JAR File

To install a module using a JAR file, first create the JAR file script. For example:

```
Platforms {
   Linux:2.0.32:x86 {
      ModuleName { "SuperCrypto Module" }
      ModuleFile { crypto.dll }
      DefaultMechanismFlags{0x0000}
      CipherEnableFlags{0x0000}
      Files {
         crypto.dll {
            RelativePath{ %root%/system32/crypto.dll }
         }
         setup.exe {
            Executable
            RelativePath{ %temp%/setup.exe }
         }
      }
   }
   Win95::x86 {
      EquivalentPlatform { Winnt::x86 }
   }
}
```

To install from the script, use the following command.

```
modutil -dbdir "/etc/dirsrv/admin-serv" -jar install.jar -installdir "/etc"

WARNING: Performing this operation while the browser is running could cause
corruption of your security databases. If the browser is currently running,
you should exit browser before continuing this operation. Type
'q <enter>' to abort, or <enter> to continue:

Using database directory /etc/dirsrv/admin-serv...

This installation JAR file was signed by:

-----------------------------------------------

**SUBJECT NAME**

C=US, ST=California, L=Mountain View, CN=SuperCrypto Inc.,
OU=Digital ID Class 3 - Red Hat Object Signing,
OU="www.verisign.com/repository/CPS Incorp. by Ref.,LIAB.LTD(c)9 6",
OU=www.verisign.com/CPS Incorp.by Ref. LIABILITY LTD.(c)97 VeriSign,
OU=VeriSign Object Signing CA - Class 3 Organization, OU="VeriSign,
Inc.", O=VeriSign Trust Network **ISSUER NAME**,
OU=www.verisign.com/CPS Incorp.by Ref. LIABILITY LTD.(c)97 VeriSign,
OU=VeriSign Object Signing CA - Class 3 Organization, OU="VeriSign,
Inc.", O=VeriSign Trust Network

-----------------------------------------------

Do you wish to continue this installation? (y/n)

Using installer script "installer_script"
Successfully parsed installation script
Current platform is Linux:2.0.32:x86
Using installation parameters for platform Linux:2.0.32:x86
Installed file crypto.dll to /winnt/system32/crypto.dll
Installed file setup.exe to ./pk11inst.dir/setup.exe
Executing "./pk11inst.dir/setup.exe"... "./pk11inst.dir/setup.exe" executed
successfully
Installed module "SuperCrypto Module" into module database
Installation completed successfully
```

Changing the Password on a Token

To change the password for a security device in use by a module.

```
modutil -dbdir "/etc/dirsrv/admin-serv" -changepw "Admin Server Certificate DB"

WARNING: Performing this operation while the browser is running could cause
corruption of your security databases. If the browser is currently running,
you should exit browser before continuing this operation. Type
'q <enter>' to abort, or <enter> to continue:

Using database directory /etc/dirsrv/admin-serv...
Enter old password:
Enter new password:
Re-enter new password:

Token "Admin Server Certificate DB" password changed successfully.
```

Index

A

access log
- changing location and name
  - in the command line, Changing the Log Location in the Command Line
  - in the Console, Changing the Log Name in the Console
- defined, Viewing Logs
- viewing in command line, Viewing Logs in the Command Line
- viewing in Console, Viewing the Logs through the Console

access settings
- for Admin Server, Changing the Admin User's Name and Password

Admin Express
- configuring, Configuring Admin Express
  - directives, Admin Express Directives
- file locations, Admin Express File Locations
- files, Admin Express Configuration Files
  - for replication status, Files for the Replication Status Appearance
  - for server information page, Files for the Server Information Page
  - for the server logs page, Files for the Server Logs Page
  - for the welcome page, Files for the Admin Server Welcome Page
- opening, Opening Admin Express
- replication monitoring, Monitoring Replication from Admin Express
- starting and stopping servers, Starting and Stopping Servers
- viewing server information, Viewing Server Information
- viewing server logs, Viewing Server Logs

Admin Server
- access settings for, Changing the Admin User's Name and Password
- defined, Introduction to Red Hat Admin Server
- directory settings for, Changing Directory Server Settings
- enabling SSL, Enabling SSL
- encryption settings for, Working with SSL
- logging options for, Viewing Logs
- login, Opening the Admin Server Console
- password file, Creating a Password File for the Admin Server
- port number, Changing the Port Number
  - in the command line, Changing the Port Number in the Command Line
  - in the Console, Changing the Port Number in the Console
- requesting a certificate, Requesting and Installing a Server Certificate
- restarting, Starting and Stopping the Admin Server
- starting and stopping

- command line, Starting and Stopping Admin Server from the Command Line
- Console, Starting and Stopping Admin Server from the Console

- starting and stopping servers, Starting and Stopping Servers
- starting the Console, Opening the Admin Server Console
- viewing logs, Viewing Server Logs
- viewing server information, Viewing Server Information

Admin Server Console
- starting, Opening the Admin Server Console

Administration Server Administrator
- defined, Changing the Admin User's Name and Password

administrators
- changing username, Changing the Admin User's Name and Password
- resetting passwords, Changing the Admin User's Name and Password

authentication, Opening the Admin Server Console

C

certificates, Requesting and Installing a Server Certificate
- installing, Installing a CA Certificate

Configuration Administrator
- defined, Changing the Admin User's Name and Password

configuration directory
- changing settings for, Changing the Configuration Directory Host or Port
- overview, Changing the Configuration Directory Host or Port

connection restrictions, Setting Host Restrictions
- setting in the command line, Setting Host Restrictions in the Command Line
- setting in the Console, Setting Host Restrictions in the Console

D

directives, Admin Express Directives

Directory Server
- file locations, Directory Server File Locations
- replication monitoring, Monitoring Replication from Admin Express
- starting and stopping servers, Starting and Stopping Servers
- viewing information, Viewing Server Information
- viewing logs, Viewing Server Logs

E

encryption
- settings for Admin Server, Working with SSL

error log
- changing location and name
  - in the command line, Changing the Log Location in the Command Line
  - in the Console, Changing the Log Name in the Console
- defined, Viewing Logs
- viewing in command line, Viewing Logs in the Command Line
- viewing in Console, Viewing the Logs through the Console

F

File locations, Directory Server File Locations

Filesystem Hierarchy Standard, Directory Server File Locations

H

host restriction, Setting Host Restrictions
- setting in the command line, Setting Host Restrictions in the Command Line
- setting in the Console, Setting Host Restrictions in the Console

J

JAR information file
- global keys, modutil
- per-file keys, modutil
- per-platform keys, modutil
- syntax, modutil

L

logs
- changing location and name
  - in the command line, Changing the Log Location in the Command Line
  - in the Console, Changing the Log Name in the Console
- viewing access, Viewing the Logs through the Console, Viewing Logs in the Command Line
- viewing error, Viewing the Logs through the Console, Viewing Logs in the Command Line

M

modutil
- commands
  - add, modutil
  - changepw, modutil
  - create, modutil
  - default, modutil
  - delete, modutil
  - disable, modutil
  - enable, modutil
  - fips, modutil
  - force, modutil
  - jar, modutil
  - list, modutil
  - undefault, modutil
- options
  - dbdir, modutil
  - installdir, modutil
  - libfile, modutil
  - mechanisms, modutil
  - newpwfile, modutil
  - nocertdb, modutil
  - pwfile, modutil
  - slot, modutil
  - tempdir, modutil
- overview and syntax, modutil
- usage examples, modutil
- using JAR information file with, modutil

P

password file
- Admin Server, Creating a Password File for the Admin Server

passwords, Changing the Admin User's Name and Password

port number, Changing the Port Number
- changing in the command line, Changing the Port Number in the Command Line
- changing in the Console, Changing the Port Number in the Console

R

replication monitoring, Monitoring Replication from Admin Express

restart
- Admin Server, Starting and Stopping the Admin Server

S

sec-activate, sec-activate

SSL, Working with SSL
- Admin Server password file, Creating a Password File for the Admin Server
- certificates, Requesting and Installing a Server Certificate
- installing certificates, Installing a CA Certificate
- using with Admin Server, Enabling SSL

Starting and stopping
- Admin Server Console, Opening the Admin Server Console
- Directory Server and Admin Server, Starting and Stopping the Admin Server

starting and stopping servers, Starting and Stopping Servers

U

user directory
- settings, Changing the User Directory Host or Port

V

viewing server information, Viewing Server Information

viewing server logs, Viewing Server Logs